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FOREWORD

FROM its start the United States Department of Agriculture has promoted efficiency on the farm. Efficiency in the old sense of the word, however, is not enough. As farmers well know, profits cannot be got just by improving plants and livestock, by fighting diseases and pests, or by reducing the wastes of marketing. That alone is not efficient. Ordinary technical efficiency reduces only the cost of production; under present conditions it is necessary also to adjust the output to a changed world market. Low-cost production may mean loss to the farmer if it is excessive production. ¶In this Yearbook the Department reports what it has done recently toward adjusting production and promoting efficiency. The annual report of the Secretary to the President, with which the volume opens, tells about action taken under the Agricultural Adjustment Act of 1933. This legislation enables the farmers, with Federal guidance, to plan their production. It seeks to transform blind competition into broad-visioned cooperation, and to correct the result of previous mistakes. Under the heading "What's New in Agriculture", the Yearbook contains articles by Department specialists recounting progress in research, in law administration, and in practical service to agriculture and to the Nation. In short, the volume reports things done both in economic adjustment and in technical research. ¶These two kinds of departmental activity do not conflict but go together. Economic adjustment and technical research are necessary mutual supports, particularly just now. Even in normal circumstances it is difficult to prevent a clash between technical efficiency and profitableness in farming. As more and more farmers adopt the latest methods, their aggregate production increases until prices fall below costs. In periods of great overproduction, increased efficiency is a very mixed blessing, if farmers do not counteract its tendency to swamp the market. They cannot do so profitably by ceasing to be efficient. Such a course would increase costs more than it would increase prices, and would give an advantage to competing countries. The only workable expedient is economic adjustment. ¶Agriculture needs not less science in its production, but more science in its economic life. We may usefully distinguish between productivity and production. Real efficiency increases the former but not necessarily the latter. Farmers cannot have too much productivity or production power, provided they keep it under control. High productivity means low unit costs. With efficient economic as well as efficient technical practice, farmers can make productivity their servant. It is half-science that turns research into a Frankenstein, and leads to demands for a halt in technical progress. Full science embracing the distribution as well as the production of wealth reconciles the conflict. ¶In the last year our farmers have taken their first steps toward matching efficiency in production with efficiency in economic adjustment. As they proceed along this path, they will realize that the more they have of the one type of efficiency the easier they will find it to achieve the other. The reason is plain. Efficient production is more dependable, and therefore more easily controlled, than inefficient production. By considering economic and technical problems equally, and by indicating their interdependence, this Yearbook emphasizes a principle destined, I believe, to become vitally important.

HENRY A. WALLACE, *Secretary of Agriculture.*

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WASHINGTON, D.C., *November 15, 1933.*

To the PRESIDENT:

THE DILEMMA OF THE SURPLUSES

In the simpler days before the war when we were a debtor Nation and foreign nations were willing to take all we could produce in satisfaction of our debt, we were not bothered by thoughts of economic planning. Production overshot demand only occasionally and temporarily. Foreign nations wanted our goods and had the means to pay for them.

The war and its consequences changed the situation utterly. With our production power vastly expanded and the foreign demand greatly curtailed, it was necessary to establish a new balance. This required adjustments in both supply and demand. Agriculture, especially, found itself in a dilemma. It could not reduce its output as rapidly as the demand declined and there was no way to increase the demand. It was involved in heavy production for a foreign market that had been forced, for lack of purchasing power, to cease, or almost to cease, buying. In these circumstances economic planning became not merely advisable but necessary. Adjusted production on the one hand and restored buying power at home and abroad on the other stood out as things absolutely indispensable to agricultural recovery.

Accordingly, the farmers of the United States are beginning to plan together under Federal guidance. Agricultural conditions have improved greatly during the last 6 months, partly because something has been done to balance production with demand and partly because Government action has improved the economic situation generally. Rising farm prices and farm incomes and the return of hope and confidence to the agricultural community are matters on which one is tempted to dwell. But it is more important to emphasize the problems that await solution.

The recent improvement is not simply a typical phase of the economic cycle or a natural turning of the tide, but a result, in large part, of deliberate policy and action. It by no means signifies that customary ways of doing things may safely be resumed. It is necessary to ponder carefully the conditions out of which the improvement developed, so that we may make it lasting.

Tremendous Price Disparity

What the depression of 1929–33 did to agriculture appears most strikingly in the tremendous disparity it produced between the prices of farm commodities and the prices of the goods that farmers usually buy. Farm-commodity prices had dropped by early 1933 to a point 50 percent below the pre-war level, whereas in 1928 they had averaged nearly 50 percent above. Prices paid by farmers for commodities dropped down to, but not below, the pre-war level. Thus farm commodities had only half their pre-war unit-purchasing power. Gross farm income from the production of 1932 was less than half that of 1929, whereas fixed charges, including taxes and interest, were not proportionately lower. Mortgage interest and taxes together took almost 25 percent of the gross farm income. As a result of the big drop in farm prices and the comparatively small declines in farm costs, the average farmer after paying the expenses of production, interest, rent, and taxes had only about $230 left. This gave him nothing as a return on his investment and much less than common-labor pay for his labor and management.

Agriculture, in short, was very sick, and the disease from which it suffered threatened also the entire community. Ruinously low farm earnings tended to separate farm operation from farm ownership and to degrade farmers into virtual serfdom. The collapse of farm prices caused a heavy loss in farm valuations, in which farmers' equities were destroyed. All the capital employed in agriculture had a value in January 1933 of only $38,000,000,000, as compared with $58,000,000,000 in January 1929 and $79,000,000,000 in January 1919. Farmers bore the brunt of this terrific decline, because farm debt remained virtually unchanged. Average mortgage debt per acre was nearly three times greater than in the pre-war years.

Farm land values had fallen, for the country as a whole, to about three fourths of their pre-war value. Forced sales of farms had risen to new high levels. Agriculture was in fact thoroughly insolvent. Creditors could not collect their claims and became involved themselves. City people could not sell their products to farmers. The stability not merely of agriculture but also of business hung in the balance. Indeed the threat was not merely to urban business but to urban security, for social security in cities cannot long survive its disappearance in the country. The depression robbed farmers of their independence, formerly the chief attraction of country life, and thereby weakened the foundations of our whole economic system. It tended, through foreclosures and bankruptcies, to shift farm ownership from the country to the town, but under conditions that made the shift a peril rather than an advantage to the new owners.

Causes of Farm Distress

This was the situation that confronted agriculture and the Nation when the present administration took office. Some details will throw light on the causes and help to explain the relief program adopted a little later. Under the double stimulus of price and of patriotism, American agriculture during and after the war expanded tremendously its production for export. Our agricultural exports, which had generally fallen from 1898 to 1913, reached a record level in 1919. In that year we exported 15.8 percent of our farm production.

Thereafter the trade declined, gradually until 1929 and then sharply. Since then the export proportion has averaged less than 7 percent of the farm production. There has been no corresponding decline in total output, which on the contrary has increased. Here in a nutshell is much of the explanation for the agricultural depression. Declining exports with mounting production naturally mean mounting surpluses. When export surpluses cannot be profitably sold, domestic sales show a loss too; blocked export outlets force supplies back into the home market and swamp it.

It is true that the depression of 1929 caused a decline in the domestic as well as in the foreign demand for agricultural products. Industrial conditions within the United States affect our agriculture vitally. Factory employment diminished so greatly in 1930, 1931, and 1932 that the purchasing power of the urban community fell by more than half. The decline in industrial activity wiped out the per capita increase in that activity of the previous 30 years. In such circumstances farm products had necessarily to be offered at sacrifice prices. Yet the inevitable loss would unquestionably have been smaller had trade channels not been glutted with unsalable supplies intended for export.

This is evidenced by the fact that farm commodity prices declined far more than other prices. Had farm production not been overexpanded in relation to its total market, an exactly opposite tendency would have developed, because the per capita consumption of farm products declines for obvious reasons much less than that of other goods during depressions. Primarily, therefore, the distress of American agriculture from 1920 to 1929 may be attributed to the existence of unwanted export surpluses and after 1929 also to the weakness of domestic demand. The fact that other industries not similarily overexpanded suffered too indicates that agriculture would not have escaped scot free in any event; but the exceptional degree to which agriculture suffered points clearly to relative overproduction as the principal cause.

Position of Some Leading Farm Products

The position of some leading farm products shows the magnitude of the surplus problem. World carry-over of American cotton in the 1932–33 season was 13,000,000 bales—about two and a half times the normal carry-over. Yet world cotton production in 1932–33 was the smallest since 1923–24, with the exception of 1927–28. This country's contribution to the total, though yields were normal, was nearly a fourth less than that of the previous crop year. It is difficult to imagine more impressive evidence of the extent to which the capacity to produce cotton had overshot the demand. Our cotton area increased from 28,678,000 acres in 1921 to 44,616,000 acres in 1926. Above-average yields on a cotton acreage equal to that of recent years would give a production far above the world's average annual consumption of American cotton. Average yields on foreign cotton acreage will produce from 11,000,000 to 12,000,000 bales annually. Cotton acreage in foreign countries is down only slightly from the 1925–26 peak.

Before the war the cotton situation was pretty well balanced. Production was increasing both in the United States and in foreign countries, but so was the demand. War-time and post-war developments obscured the possibility that this well-balanced position might not last. After a brief post-war slump, cotton prices soared to high levels. Growers responded by increasing their acreage, and by 1925–26 the world had nearly 87,000,000 acres in cotton. Signs then appeared that production had been overdone. World consumption of American cotton fell in 1929–30 to 13,000,000 bales, as compared with 15,000,000 bales or more in each of the 3 preceding years. Cotton consumption fell heavily in the United States. This country, as the world's largest source of cotton, found itself burdened with a crushing surplus.

Equally staggering was the wheat surplus. In the nineteenth century this country had in Europe a market for all the wheat it had to spare. We exported, mostly to Europe, no less than 227,240,000 bushels in 1898. The trade declined in the early years of the twentieth century, and by 1911 the wheat exports had dropped to 81,891,000 bushels. American farmers adjusted themselves to the change, altered their production somewhat, and continued to prosper.

The war threw our wheat industry back into high production for export. By 1920 our wheat exports had risen to 369,313,000 bushels—far above the peak reached in the nineteenth century. Other wheat-exporting countries increased their production and exports. In 1890 the United States produced about eight times as much wheat as the combined production of Canada, Argentina, and Australia. These three countries in 1928–29 produced more wheat than we did. They produced 1,076,000,000 bushels, practically three quarters of which competed with our wheat in the European market. After the war Europe restored its wheat production. It increased the yield from 1,100,000,000 bushels in 1922 to 1,500,000,000 bushels in 1932.

As a result of all these circumstances, we had, after the crisis of 1929, a wheat production far exceeding the market demand. In 7 of the last 8 years the production of wheat in the United States exceeded 800,000,000 bushels; in 2 of those years it exceeded 900,000,000 bushels. From 600,000,000 to 700,000,000 bushels went into domestic consumption. The rest had to be exported or stored. In the existing world-market situation, American net wheat exports declined inevitably. They were less than 32,300,000 bushels in 1932–33, as compared with 142,000,000 bushels in 1928–29. Our wheat carry-over increased to nearly 370,000,000 bushels in 1933, or more than three times the normal. We had on hand in this country almost half a year's average production.

Similar conditions existed in the hog industry, which during the war expanded its exports of hog products by about 200 percent, or the equivalent of 10,000,000 hogs. After the war European countries restored their hog production. Our exports of hog products had trended downward since the war, though lard had not been so much affected as pork. The war-time increase had disappeared. In 1932 the exports represented the equivalent of only 5,000,000 hogs, as compared with more than 16,000,000 in 1919. American hog farmers were beset with an excess-production problem because of a severe contraction in their export outlet, just as were the wheat and cotton growers. There had been no proportionate adjustment in hog production. On the contrary, the hog farmers had continued their production almost as if the large war-time European demand still existed. On January 1, 1933, the estimated number of hogs on farms in the United States was 60,716,000, as compared with 63,800,000 on January 1, 1919.

These examples, which have their counterpart to a lesser extent in other farm commodities that are exported in substantial amounts, demonstrate positively that the American farm problem is largely a result of a greatly reduced export market. With excessive production for export, adjustment to demand in the home market is impossible. Under that handicap, a complete industrial revival in the United States accompanied by a great increase in consumer buying power would not restore prosperity to the farmers. Export surpluses that cannot be sold become domestic surpluses; and it is a truism that prices cannot rise permanently in overstocked markets.

Our Creditor Status

Overproduction for export is not a temporary difficulty, which will tend to disappear spontaneously with the revival of industry and trade throughout the world. Our large agricultural export trade during and after the war rested on foundations too precarious to be restored. It rested mainly on credits extended by this country to the importing nations. We went into the World War owing other nations 200 million dollars annually on interest account. We came out of it with other nations owing us more than 500 million dollars annually. Other nations now owe us annually on interest account more than 1 billion dollars. They are compelled in consequence to reduce their purchases here, all the more since we do not afford them a market for their products. The struggle of the debtor countries for agricultural self-sufficiency, and their natural inclination to buy where they can sell, make it inconceivable that the foreign demand for American agricultural products will expand sufficiently in the near future to absorb our surpluses.

After the outbreak of the war, our foreign creditors sold American securities freely in the United States, thereby reimporting capital which they had previously exported. In addition, American investors loaned half a billion dollars to the allied nations. After the United States entered the war, the Federal Government made loans to European countries. The total ran to more than 10 billion dollars. This enormous outflow of funds, which continued for a time after the war, provided European nations with a greatly increased purchasing power for American products. As a result, the excess of our exports over our imports became very large. In the peak year, 1919, it amounted to about 4 billion dollars.

In short, the United States faced the necessity of receiving from the debtor countries an increasing quantity of goods and services in payment of their obligations. This result was postponed up to 1930 by further lending. But only by lending indefinitely, in ever-increasing amounts, could this country in the long run avoid importing more than it exported. Such a one-sided movement of capital and of goods cannot be permanent even in an extremely favorable world-trade situation. It is necessarily brief when depression destroys credit. Our excess of exports over imports remained larger on the average between 1924 and 1930 than before the war not only because we loaned much capital to foreign countries but also because American tourists made large expenditures abroad and because emigrant remittances and ocean freight payments were heavy. The depression weakened all these supports of the export trade.

After the crisis of 1929 American lending to foreign countries diminished greatly. The transfer of funds from the United States to foreign countries did not, however, cease entirely. Though our investors stopped buying foreign bonds in large amounts, foreigners withdrew considerable sums which they had on deposit in American banks. Moreover, Americans transferred large amounts to Europe after the depreciation of the dollar last March. But this outflow of short-term money cannot continue indefinitely. Inevitably, therefore, our trade balance will become less favorable. Only by foreign lending on an increasing scale can the excess of exports over imports be maintained, and the chances are against that development.

Choice of Two Lines of Policy

This Nation consequently faces a choice between two lines of policy—either it must modify its tariff policy so as to permit a larger quantity and value of imports to enter the country, or it must accept a considerable and permanent loss of its foreign markets. A revival of lending, if that were possible, would postpone the necessity for making the choice but would not obviate it permanently. Manifestly the issue is of supreme importance to agriculture, which remains one of our principal exporting industries. It will probably be necessary, in any event, to count on some permanent reduction in the export demand for agricultural products; but how large the necessary reduction will be depends greatly on our tariff policy. We cannot go on selling abroad without buying abroad.

Failure to recognize such fundamental changes in debtor and creditor positions leads to political situations that complicate the supply-and-demand equation. These situations nevertheless do not override the law of supply and demand, which is remorseless in its operation. They may postpone, but cannot avert, the final reckoning. Since March 4 last the country's affairs have improved greatly. There has been a total increase in industrial pay rolls of about 65 percent, and the purchasing power of farm products has advanced materially. This improvement, however, cannot last if we do not meet the problem caused by the fact that we have at least 40 million too many acres of plow land in crops, in view of the international situation on debts, tariffs, and foreign lending.

The United States is a creditor nation with a debtor nation psychology. The American people are still essentially high-tariff in their attitude. They are disillusioned about lending money abroad and yet do not wish to allow foreign nations to send goods here to pay for our wheat and cotton and other exportable commodities. It must be one thing or the other. Either we must modify our tariff policy and perhaps also our policy with regard to international debts and foreign lending, or we must put our internal economy on substantially a nationalist basis. The best course would be to work toward an expansion of foreign purchasing power in definite, tangible ways—through tariff adjustments and eventually through renewed foreign lending accompanied by a willingness to receive certain goods in exchange for the money loaned. The alternative course, along which we are now moving, answers the need of the emergency but demands superhuman efforts if it is to be permanent. With the foreign market practically lost, keeping down acreage and livestock production to a point that would afford a living price level to the farmers would be extremely difficult. It is necessary to balance our productive forces to the kind of world we want to live in. We have not yet decided what kind of world we want.

Emergency Adjustment Necessary

The world situation being what it is, our immediate task is to accomplish an emergency adjustment of farm production to the demand. This does not mean renouncing foreign trade. It is possible simultaneously to set about adjusting our farm production to the total demand, domestic and foreign, and to work for the removal of unnecessary impediments to international commerce. We normally export more than half our cotton, nearly half our tobacco, a fifth of our wheat, and from a third to a half of our packing-house lard. On the average we exported 13.6 percent of our agricultural products annually during the 10 years 1919–28. It is obvious that foreign trade will continue to be vitally important to American agriculture. Recognition of that fact is perfectly consistent with a determination not to offer our foreign customers vastly more than they can possibly take. If our foreign trade could be revived quickly by negotiating reciprocal tariffs and making intergovernment debt adjustments, the need for readjusting our farm production would be less urgent. It would remain nevertheless, because the production exceeds even the most optimistic estimates of the probable demand. As things now stand in the international sphere, the necessity of beginning with production adjustments is overwhelming.

To sum up the situation, American agriculture before the war stood in a satisfactory relationship to its markets, both foreign and domestic. Agricultural prices rose more than other prices. Net farm earnings increased, and also farm valuations. Farm exports declined after the beginning of the century, but growing consumption at home compensated for the decline. The war drew the United States back into tremendous production for export, while saddling the importing countries with debts and political troubles that reduced their buying power. Temporarily it created shortages of commodities both agricultural and industrial; but agriculture and industry overestimated the shortages and soon replaced them with surpluses. Tariffs excluded foreign goods which this country might have received in payment for its agricultural exports. Loans furnished our foreign customers an undependable means of payment which eventually failed. The crisis of 1929 developed largely as a consequence of these inconsistencies, though monetary difficulties in many countries played a considerable part therein. As their buying power declined, foreign countries adopted trade restrictions which added to our export difficulties, and brought world trade under governmental control to an extent unprecedented in modern times. As a result, the demand for the products of the farm dropped catastrophically, while the production remained virtually unchanged.

AGRICULTURAL ADJUSTMENT LEGISLATION

Congress provided means for dealing with the farm problem in an act (Public No. 10, 73d Congress).

to relieve the existing national economic emergency by increasing agricultural purchasing power, to raise revenue for extraordinary expenses incurred by reason of such emergency, to provide emergency relief with respect to agricultural indebtedness, to provide for the orderly liquidation of joint-stock land banks, and for other purposes.

The act, which was approved by the President on May 12, 1933, has three titles, two applying directly to agriculture, and the third to the national currency.

Title I deals with farm-production control and marketing agreements, and gives the measure its popular name—The Agricultural Adjustment Act. Title II relates to farm credits by amendments to the Federal Farm Loan Act, and by appropriations for various types of agricultural credit. Title III empowers the President to arrange for the expansion of credit by the purchase of Government securities through the Federal Reserve banks, to cause the issuance of United States notes in his discretion up to the amount of $3,000,000,000, and by proclamation to fix the weight of the gold dollar and the silver dollar. This title is called the Inflation Amendment to the Agricultural Adjustment Act and affects agriculture along with other industries by its potential influence upon the general price level.

In a declaration of policy under title I, the act says it is the purpose of Congress to establish such a balance between the production and the consumption of agricultural commodities as will restore the purchasing power of farm products "to the level of the base period." For all agricultural commodities except tobacco, the base period is the pre-war period August 1909 to July 1914. For tobacco the base period is the post-war period August 1919 to July 1929. To protect consumers, the act declares that farm production must be adjusted so as not to give the farmer a higher percentage of the consumer's total retail expenditures for agricultural commodities than he received in the base period.

Crop Adjustments and Marketing Agreements

The measure seeks to raise the incomes of farmers by two principal means: (1) By getting their cooperation in necessary crop adjustments calculated to bring supply into a better balance with demand; and (2) by authorizing the Secretary of Agriculture to enter into marketing agreements with producers, processors, and distributors of agricultural products, so that competitive wastes may be eliminated, trade practices improved, surpluses moved into markets for consumption, and producers' prices raised.

In connection with certain basic agricultural commodities, the Secretary of Agriculture may make compensatory payments to producers in return for agreements to curtail their acreage or their production for the market. The basic commodities specified are: Wheat, cotton, corn, hogs, tobacco, rice, and milk and its products. It is not mandatory for the Secretary to take this action.

He may levy taxes on the first domestic processing of any of the basic commodities, in order to raise funds for the necessary payments to farmers. The act also appropriates $100,000,000 under title I for administrative expenses and compensatory payments, and authorizes the Secretary of the Treasury to advance funds to the Secretary of Agriculture in anticipation of the proceeds of processing taxes.

Under the sections relating to marketing agreements, the Secretary of Agriculture may bring producers, processors, or handlers of farm commodities into trade relationships calculated to promote a better adjustment of supply to demand, to assure fair prices to producers, and to protect the consumer. He may license the parties concerned under regulations penalizing violations of the agreements. The antitrust laws do not apply to agreements thus made.

Farm Debt Sections of the Act

Title II of the act, originally introduced in Congress as a separate bill, contains provisions for refinancing farm indebtedness whereby excessive debts may be cut down, interest rates reduced, and payments on principal postponed. It provides means also for redeeming land which has been taken from farmers by foreclosure. Farmers whose mortgages are already held by any of the 12 Federal land banks also benefit directly by a reduction of their interest charges to 4½ percent for a period of 5 years. The measure appropriates $15,000,000, and such additional sums as may be necessary, to reimburse Federal land banks for this reduction. Federal land banks may issue bonds up to $2,000,000,000 on which the Government guarantees the interest. The act also appropriates $50,000,000 which the Secretary of the Treasury may use in subscribing to the paid-in surplus of the Federal land banks. The orderly liquidation of joint-stock land banks is provided for, and a fund of $100,000,000 is made available for loans to assist in this process. A loan fund of $25,000,000 is also made available to these same banks to enable them to postpone foreclosures on delinquent loans. It authorizes and directs the Reconstruction Finance Corporation to make $200,000,000 available to the Farm Loan Commissioner for direct loans on farm real estate, and to lend up to $50,000,000 to agricultural improvement districts such as irrigation and drainage and levee districts. In addition, it permits the Reconstruction Finance Corporation to advance not more than $5,000,000, on the request of the Secretary of the Interior, to complete authorized reclamation projects.

The National Industrial Recovery Act (Public No. 67, 73d Cong., approved June 16, 1933) authorizes the President to allocate not more than $100,000,000 of the $3,300,000,000 appropriated by that act for expenditures under titles I and II of the Agricultural Adjustment Act.

Methods Provided for Crop Reduction

The law, in title I, attacks the problem of the surplus. Ordinarily the producers would attend to the matter themselves, but circumstances prevent that. Often there is no escape from the farm, except into the ranks of the unemployed; and low prices compel competing producers to maintain the volume of their output. Farm production in the United States has not changed much since 1924, though the demand has fallen greatly. The only remedy is concerted action under central guidance, a course provided for in the law by several methods, which include the leasing of land, the payment of cash compensation in return for output reductions, the cotton-option plan, and trade agreements to regulate production and prices.

These methods will be discussed in more detail in connection with the action taken under the law regarding wheat, cotton, tobacco, dairy products, etc., but an important feature common to them all should be emphasized here—they reach the individual farmer. Agricultural production in this country results from the decisions and actions of individual farmers, and farm production ultimately determines relative farm prices. It is therefore impossible to control the output except through the individual producer, by means that insure his cooperation through a balancing of inducements with responsibilities. Cash benefits under the law go only to the farmers that join in the effort to control production.

Along with the crop-reduction programs the act authorizes efforts to obtain for farmers a larger share of the consumer's dollar. Trade groups have an incentive to cooperate. Part of the consumer's dollar goes now to support wasteful and unnecessary competition, duplication of selling expense, a needless multiplicity of so-called services to consumers, dubious credit arrangements, and various unethical practices. Eliminating these wastes should mean better conditions for honest and efficient business, as well as better prices for producers. Giving farm commodities generally a purchasing power (an exchange value) in terms of other goods, equal to that which they had before the war, may in some cases involve higher prices to consumers. Fair exchange prices, however, should not work a hardship upon anyone; in fact they should benefit the community as a whole by improving the farm market for city goods and creating city jobs. For years now consumers have had farm products at less than cost. This is not good business even for the consumer. It threatens ultimately to dry up the sources of supply. Everyone has an interest in paying the farmers fair prices, in putting agriculture back on its feet.

The consumer has a right to expect, however, that the addition to his food bill shall go to the farmer, and to no one else. Generally other interests are not entitled to any part of the increase, because they have not suffered proportionately with the farmer in the slump since 1929. In order that the consumer may know that he is really helping agriculture when he pays a little more for milk or bread or cotton goods, the Agricultural Adjustment Administration will publish facts about spreads between consumers' and producers' prices.

Action by Farmers Indispensable

Agriculture's immediate prospects depend, of course, on many things besides what may be done under the Agricultural Adjustment Act. As the Industrial Recovery Act puts men to work, it will improve the domestic market for farm products. World wheat conditions may be helped by international action to reduce wheat acreage and to remove trade barriers. Cotton demand abroad may improve as the depression lifts. Our own administration's financial policy may raise the price level. Benefits that come to agriculture aside from its own efforts, however, may be temporary unless supported by thoroughgoing readjustments within the agricultural industry itself.

Production and marketing conditions for the different agricultural commodities vary greatly. Continuous change in economic situations makes any inflexible solution certain to be found unsuitable or ineffective after a comparatively short time. To deal with the many factors that contribute to the farmers' present situation, to deal with these factors as they apply to the commodities concerned, and to meet changes in the economic situation, the legislation grants broad and flexible powers. As already indicated, there is authority to provide for effective yet voluntary reduction in crop acreage, and to provide for a reduction in the amount of any commodity produced for market.

Briefly, the act is a program for economic planning—the first of its kind in the Nation's history. It contemplates the organization of producers for action which they cannot take individually, but which is necessary to substitute order for chaos in the agricultural industry.

The law seeks to build a regulated and properly balanced agricultural industry, with the forces of production bridled so as not to run rapidly beyond the demand, and to increase the demand by redistributing purchasing power so that it will come more readily into the market for consumable goods. It is a colossal job on lines not yet clearly defined. Broadly, the problem is to balance the agricultural industry internally and externally—internally by adjustment among its numerous enterprises, and externally by reducing total production and increasing consumer buying power.

Relation of Agriculture to Industry

In the post-war boom urban industry prospered much more than agriculture. It had a protected home market, whereas agriculture, with an overexpanded plant, had to meet world competition. In consequence nonagricultural prices rose much higher than agricultural prices after the first post-war slump. The disparity gave urban industry a temporary advantage. It could get raw materials cheap from the farm and had no need to advance wages equally with profits because living costs were low. In 1929 the rate of return on nonagricultural capital was about two and one half times the rate earned on agricultural capital. Even during the ensuing depression nonagricultural capital continued to earn on the average a bare return. Agriculture went heavily in the red.

The fact that urban industry prospered while agriculture did not gave rise to the notion that industry and agriculture had parted company, that the city could forge ahead independently, and that the old rule as to the identity of interest between the town and the country no longer applied. This was evidently a profound mistake. Industry and agriculture had not parted company. They never can do so. They had simply got out of step, while remaining harnessed together. When agriculture stumbled and fell, industry stopped with a jerk. It became clear that industry, by taking the products of agriculture at less than cost, had injured itself. If industry gets farm supplies for too little money, it loses agriculture as a market. The loss outweighs the gain. Farmers constitute an important part of industry's market, which sags heavily when farmers are not in it.

Permanent prosperity requires a fair exchange between the country and the town, not an unfair temporary advantage. It requires a balanced economy.

FARMERS AND NATIONAL RECOVERY PLANS

As part of the general recovery program the Federal Government has undertaken to raise the general level of prices through the control of credit and currency and through industrial codes designed to raise wages, increase employment, and improve labor conditions. These policies obviously affect the prices of the goods that farmers buy as well as the prices of the goods they sell. Raising the general price level decreases the burden of farm debts and taxes but does not necessarily give better relative prices for farm products. It is not a cure for all kinds of price disparity.

Steps that have been taken to raise commodity prices so that "those who have borrowed money will, on the average, be able to repay that money in the same kind of dollar which they borrowed" constitute an essential part of the national recovery program. Farmers have perhaps more interest than any other group in the restoration of the honest dollar. Controlled inflation now tends simply to correct the bad consequences of the uncontrolled deflation that followed the war. It is a means of promoting social justice through a fairer distribution of the national income. It lightens each farmer's debt and tax burden in proportion to the extent that it raises the prices of his products.

Monetary Action Alone Insufficient

Agriculture cannot, however, depend exclusively on a monetary policy to restore farm incomes. Depreciation of the dollar acts unequally on different agricultural products, as we have seen this year. It raises the prices of the export or speculative commodities such as wheat, cotton, and corn much more than it does the prices of milk, hogs, beef cattle, poultry, and other nonspeculative commodities sold mainly in the domestic market. Moreover, it also raises the prices of the things that farmers buy. Permanent farm relief has two principal requirements: (1) A rise in the general price level so that the burden of debt and taxes will be lightened, and (2) a closing of the gap between agricultural and nonagricultural prices. Only the first requirement can be confidently expected from controlled inflation.

If the general price level rises through monetary influences, without a proportionate change in production, supplies, and consumption, all prices and not merely prices to farmers respond eventually, though perhaps not uniformly. The disparity persists on a higher general price level. It is impossible for the Government, in its monetary policy, to single out any particular group of prices for special attention. By itself monetary action does nothing to change maladjusted situations for the better. Indeed, it may tend to prevent a favorable change by temporarily hiding the need. Inflation is not a cure-all. When it stopped, as sooner or later it would, we should again discover that the agricultural problem is one of balancing production with demand. It is of great importance that rising prices generally should not cause farmers to forget that favorable price relationships cannot exist in overstocked markets.

The proper handling of our money will help us reach a true state of balance, but there are certain fundamental factors which must be handled otherwise. To control these factors in the world of today with its multitude of trade barriers requires for the time a production control which is obnoxious to every class in our society. The farmer instinctively dislikes it; the railroads and commission men are against it, because it reduces the volume of their business; processors dislike it because of the processing tax; and consumers dislike it because it increases their cost of living. But the facts of the situation bear witness to the urgent necessity of curtailing farm production.

Effect of Codes on Price Disparity

Industrial codes under the National Recovery program had results that disappointed farmers at first. In many industries wages per hour rose as much as 50 percent. Manufacturers naturally sought to pass the increase on to consumers, including, of course, the farmers. As a result, prices paid by farmers for certain commodities rose sharply. Between March and October the average advance was more than 17 percent. Farm wages also advanced, following the advance in urban wages. Agriculture did not make the progress expected in reducing the disparity between agricultural and nonagricultural prices.

It is not likely that the immediate effect of the National Recovery program foreshadows its ultimate effect. We cannot judge what is essentially a long-time program from its initial results. The raising of wages and the shortening of hours in industrial employment delays correction of the disparity between farm and nonfarm prices, but this should be only temporary. Industries that have increased their costs through higher wages and shorter hours will soon be adjusted to the new level of costs. The prices of their goods will be adjusted to it similarly, and should advance less rapidly or become stabilized. Agricultural prices on the other hand should continue to advance with adjustments in farm production and increases in consumer buying power.

It would be wrong to attribute the whole advance in nonagricultural prices to the intended and legitimate influence of industrial codes under the National Recovery Act. There has been some tendency for manufacturers and business groups to pyramid increased costs in consumers' prices. Many commodities are selling today at prices much higher than would be necessary to meet the expense involved in raising wages and shortening hours. It is an essential part of the National Recovery program that consumer buying power shall increase more than consumers' prices. Agriculture will suffer in proportion as this fails to come about. Recovery requires a balanced and approximately simultaneous gain in wage payments, consumer buying power, and farm prices. Keeping the recovery factors marching abreast is, however, an extremely difficult task.

Eventually the National Recovery Act should raise the prices of some of the things that farmers sell even more than it raises the prices of the things they buy through its effect on consumer demand. It should strengthen the market notably for products domestically consumed. Products largely exported will, of course, remain subject to world influence. The National Recovery program harmonizes

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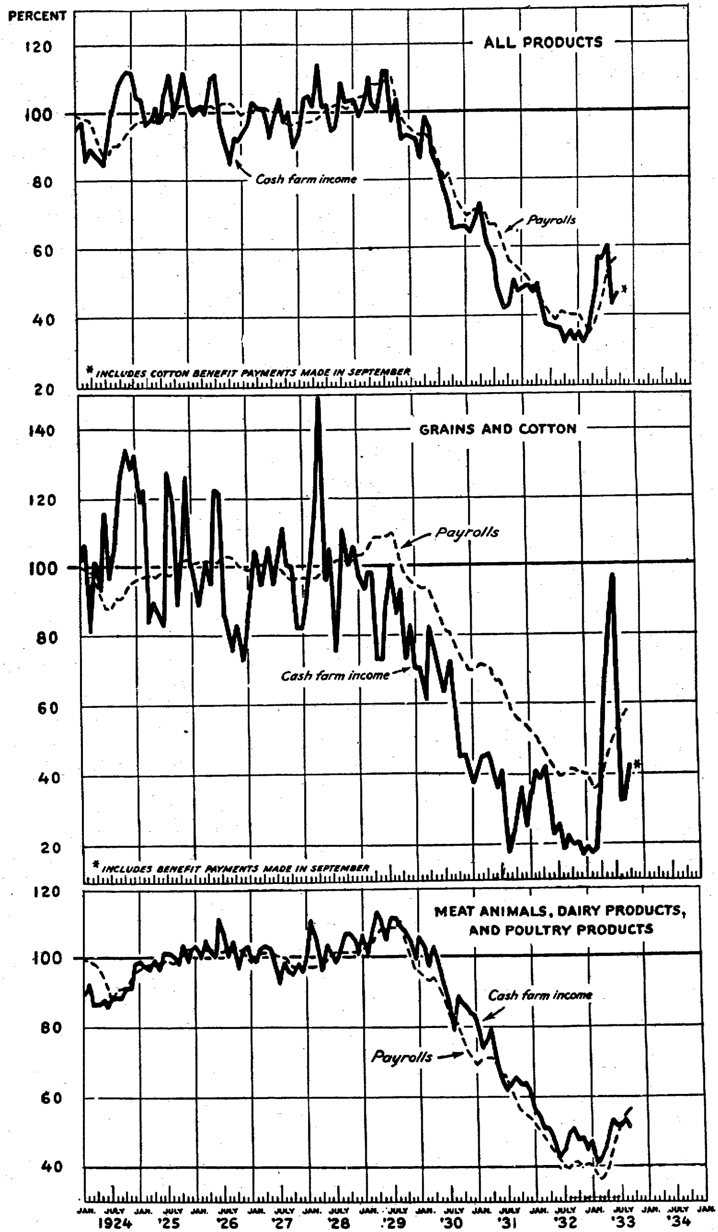

FIGURE 1.—Factory pay rolls and cash income from farm products. (Adjusted for seasonal variation, 1924–29=100.) Farm income rose much faster than factory pay rolls during the first half of 1933 but failed to retain that gain in the second half of the year. The early advance resulted largely from a sharp rise in the returns from grains and cotton. These commodities obeyed world market influences, and were particularly subject to the influence of the depreciated value of the American dollar in foreign exchange. The returns from livestock and livestock products followed more closely the course of the purchasing power of domestic consumers. There is generally a close correlation between factory pay rolls and cash income from farm products.

with the agricultural program to the extent that it increases total pay rolls, and to the extent that these pay rolls are spent for farm products. Restoring urban buying through increased employment, even if nonagricultural prices rise somewhat in consequence, is an essential part of farm relief. City workers must have increased incomes in order to pay more for agricultural goods. They will do so as soon as they are able, provided farmers do not continue oversupplying urban markets.

COORDINATING THE A.A.A. AND THE N.R.A.

It became necessary, after the enactment of the National Recovery Act, to coordinate work under the two laws. An Executive order on June 26 facilitated matters. The order delegated to the Secretary of Agriculture certain powers conferred on the President by the National Recovery Act. It placed under the Agricultural Administration all industries and trades engaged principally in handling milk and milk products, tobacco and tobacco products, and foods and foodstuffs. It covered all the powers conferred by the National Recovery Act over these industries, except the determination of labor questions. The situation thus being clarified, the Agricultural Adjustment Administration promoted various marketing agreements affecting agricultural commodities and accepted for consideration certain codes of fair competition proposed by the industries and trades mentioned in the Executive order of June 26.

Marketing agreements under the Agricultural Act have certain points in common with codes of fair competition under the National Recovery Act. Both laws authorize the licensing of everyone concerned, and both provide for the regulation of marketing. There are, however, certain important differences between the provisions of the two laws. Under the agricultural law, marketing agreements may raise prices to farmers and may give full exemptions from the antitrust laws to all persons that comply with the terms. Certain provisions in the National Recovery Act might hamper the Agricultural Adjustment Administration's aims. For example, the National Recovery Act declares that no one may be prevented from marketing the produce of his farm and that codes shall not permit monopolistic practices. Furthermore the Agricultural Act extends to farmers whereas the National Recovery Act does not. Farmers cannot be parties to a code under the National Recovery Act. Marketing agreements reached under the Agricultural Act, plus codes of fair competition established in conformity with the requirements of the industrial law, may therefore include agricultural as well as industrial groups and may regulate production with the specific object of raising prices to farmers. The Agricultural Act, in short, is in some respects the broader measure.

Agreements Plus Codes

Many possibilities for combining marketing agreements under the Agricultural Act with codes under the National Recovery Act developed from the transfer of code authority over food industries to the Agricultural Adjustment Administration. It should be possible to apportion the resulting benefits with approximate equity. Marketing agreements buttressed by codes have legal advantages which marketing agreements alone would not have. Such arrangements permit of rigid checks on the spreads between producers' and consumers' prices and of a scrutiny of operating costs, other charges, dividend policy, trade and group practices, marketing operations, price policies, and accounts. Agreements plus codes may coordinate the principal and the supplementary units within an industry. They may deal with the problem of competing units within an industry and with problems arising between that industry and related industries. They may take into consideration the relationship between particular agricultural industries and nonagricultural interests. Into the vast perspectives thus opened, it is difficult as yet to see very far. Certain general principles indicate the main policies which the Agricultural Adjustment Administration will necessarily follow.

It is of primary importance that marketing agreements or codes under the Agricultural Act shall tend to raise the prices received by farmers. This end may be sought through marketing agreements with or without licenses, or through marketing agreements supplemented by codes. There are some food industries which the Executive order of June 26 placed under the Agricultural Adjustment Administration and which have nothing to do with agriculture, as for example, the fish industry. In the case of such industries, the Agricultural Administration will merely perform a function for the National Recovery Administration. In all other cases it will treat the problem of regulation as inseparable from that of increasing the earnings of agriculture. It will probably be necessary in most cases to operate by agreements under the Agricultural Act, with codes under the National Recovery Act as a supplement, because it is only the Agricultural Act that authorizes the direct raising of prices to producers.

Farm incomes may be increased through marketing agreements in two principal ways, (1) by the direct raising of prices, and (2) by awarding to farmers some of the savings that food trades and industries may make through the lifting of the antitrust laws. It is manifest that profits thus created by the authority of a measure expressly designed to benefit agriculture should not remain exclusively with nonfarm groups. On the other hand the diversion to agriculture of all the savings thus realized would deprive the nonfarm groups of all motive to cooperate in promoting the object of the agricultural law. The matter is essentially one of agreement. It is a question of pooling and fairly distributing the economic gains that the law makes possible. This can best be accomplished through marketing agreements under the Agricultural Act.

Horizontal Agreements Desirable

It seems desirable, wherever possible, to have horizontal agreements or codes covering all the industrial units involved, rather than separate agreements or codes for small units in an industry. Industrial coordination and market balance cannot well be promoted without a close articulation of related trades. Vertical agreements or codes throughout the line of processing seem desirable also. Flour millers, wheat-starch manufacturers, and bakers, for example, should be brought under a single agreement or code. This is necessary for both economic and administrative reasons. Separate agreements or codes for minute fractions of a food industry mean continuous and complicated readjustment of conflicting interests.

In some industries a general agreement or code is impossible. In such cases the next best thing is administrative centralization, such as has been undertaken in the dairy industry.

Arrangements concerning prices may take various forms in marketing agreements or codes. In certain cases, as in the milk agreements, prices both to producers and consumers may be established, with provision for periodic change. In other cases agreements may establish prices for producers and first processors or dealers. This has been done in the California peach agreement. In other cases agreements may regulate prices indirectly, through the allocation of supplies to shippers and the fixing of shippers' charges. Invariably it is necessary to consider supply and demand conditions. Prices fixed too high tend to stimulate production while restricting consumption and thus defeat the object in view. Agreements may also regulate trade practices so that unfair competition may be checked and wastes of various kinds eliminated. Agreements should promote efficiency in marketing, including processing and distribution, in order to insure the possibility either of higher prices or of returning to the farmer a larger share of the consumer's dollar.

Various expedients will advance the general objects of the marketing-agreement program. These include the collection and publication of facts about supply and demand, margins, and profits; the licensing of processors, distributors, and others; and the measurement of the savings that result from agreements. The agricultural act recognizes the interests of both the producers and the consumers. It contemplates raising the purchasing power of farm commodities to the pre-war level while protecting the consumer against extortion. It is obviously necessary to have methods of measuring and distributing the savings that result from marketing agreements. The development of the necessary accounting methods is a difficult matter and will take time. It must be done, however, because otherwise the benefits will inevitably drift into the wrong channels.

Price Regulation

Efforts to raise the prices of farm products by crop adjustments or marketing agreements should be distinguished clearly from attempts at price fixing. In certain of the adjustment programs launched this year, the administration included provisions for regulating prices. It did so in numerous milk agreements, and in agreements covering certain fruits. In all these cases, however, the price regulations went along with efforts to adjust production. It is necessary always to consider the effect of a given price level on both production and consumption. There are always high-cost and low-cost producers. In the absence of production control, prices high enough to maintain output on the high-cost farms stimulate output excessively on the medium- and low-cost farms. Meantime, such prices tend to restrict consumption. This is why price fixing alone always fails.

Commodity Credit Corporation

On September 22 the Administration adopted a loaning plan to assure farmers a return of 10 cents a pound for the unsold balance of the 1933 cotton crop. It established a Commodity Credit Corporation, with power to advance to any cotton grower 10 cents a pound without liability to him, provided he agreed to participate in the 1934 acreage-reduction program. Growers who participated in the 1933 reduction program received close to a parity return for their cotton; the loaning plan assures all growers a minimum return per pound and an opportunity to benefit from such gains as may result from higher prices to be brought about by the acreage curtailment for 1934. A similar plan was adopted for corn following the development of a corn-hog production-adjustment program. In States where corn may be stored under seal on the farm, with warehouse receipts as collateral, corn growers may obtain an advance of 50 cents a bushel Chicago basis, provided they agree to reduce their acreage in 1934.

In everything it has done, the Agricultural Adjustment Administration has kept in view the necessity of supporting prices by supply adjustments. It has not attempted so-called " price stabilization " by storing, for the sufficient reason that removing a portion of the supply temporarily from the market without preventing a rush of new production simply makes a bad matter worse. There is no magic by which prices can be fixed arbitrarily in complete defiance of the law of supply and demand.

FARM RELIEF AND THE CONSUMER

It is the declared policy of the Agricultural Adjustment Act to protect consumers as well as to raise the incomes of the farmers. While these objects seem contradictory, actually they go well together and indeed are interdependent. The law seeks to raise not merely the prices but also the purchasing power of farm commodities. Obviously this cannot be done if the prices farmers have to pay for various commodities advance excessively.

Farmers are consumers as well as producers; they make up at least 30 percent of the consuming public and have a common interest with consumers generally in getting goods at fair prices. They buy processed agricultural materials such as dairy products, hog products, cigarettes, and cotton goods. These things in their finished form include many elements of cost that do not figure in the raw materials. The intervening costs often greatly exceed the value of the raw materials. It is extremely important that false costs should not be added to true costs.

Farmers cannot be separated from other consumers and given special protection. All consumers must have protection. The farm recovery program includes protection for the consumer, not simply as a matter of justice to the general public, but as an aid to farm relief. Failure to keep consumers' prices in a sound relationship to producers' prices would prevent farm-commodity purchasing power from rising and would defeat the objects of the Agricultural Act.

Farm recovery requires, in short, that producers' prices shall rise more than consumers' prices—in other words, that spreads between country and city prices shall be reduced. These spreads are generally wider now than they were before 1929, and universally wider than before the war. Manufacturing and distribution took a steadily increasing share of the consumer's dollar between 1910 and 1929. In the case of milk the share increased from 56 to 62 percent; in the case of bread, from 74 to 81 percent. On the average the retail prices of foods increased nearly 70 percent during this period, whereas the farm prices of foods increased only 36 percent. After 1929 farm prices dropped much more than retail prices. The spread between the country and the town prices increased proportionately.

Redistribution of purchasing power to wage earners and crop adjustments in agriculture cannot be relied on exclusively to correct the trouble. These factors should help to bring supply and demand more nearly into balance. Processors, distributors, and others, however, hold a strong position in the economic system. They can continue to exact an undue share of the consumer's dollar, if nothing is done to stop them. Codes and marketing agreements, unless very carefully drawn, may serve to perpetuate unbalanced conditions. In seeking the cooperation of processors and distributors in arrangements to pay increased prices to farmers, the administration must allow these groups a profit. It is extremely difficult not to be drawn beyond that point.

Regulation of Margins

Restoration of a good balance in the economic system may require more than allowing fair prices to farmers without charging the consumers prices exceeding the fair exchange value prescribed in the Agricultural Act. Some pending agreements that do that nevertheless permit increased profits to processors and distributors. Such increases generally would obviously work against the purposes of the Agricultural Act and the National Recovery Act and would counteract the desired redistribution of purchasing power. Regulation of production and of producers' prices would seem to require, as a logical corollary, the regulation of profits. When profits increase greatly out of proportion to wage payments, consumption inevitably falls. Farm returns fall in consequence. It is necessary to arrange matters so that processors and others who, under marketing agreements and licenses, are required to pay increased prices to farmers shall not add more than that increase in their prices to consumers. Usually they can well afford to add less.

This question of profits goes, of course, beyond the industries that handle agricultural products. Stability in our industrial as well as in our agricultural life may depend on answering it correctly. It may be necessary to review very critically the influence of excessive profits on our economic life. Farmers know well that sharply rising farm prices produce expansion which shortly brings prices down. Similarly, unbalanced expansion results in industry from temporarily high profits, so that the profits eventually are wiped out. In both agriculture and industry a better total return would probably result, in the long run, from prices and profits that fluctuated less. One gain would be a drop in speculation, which thrives on instability. It is not high prices or high profits that cause speculation, but changing prices and profits. Methods that prevented undue fluctuations would be more powerful than many laws in curbing speculation.

But more important than the prevention of speculation is the distribution of income in such a manner as to close and not widen the gap between production and consumption. Excessive margins between producers' and consumers' prices tend perhaps as much as anything else to destroy the balance.

FARMERS AND UNEMPLOYMENT RELIEF

Farm relief through unemployment relief became part of the national policy in September with the organization of the Federal Surplus Relief Corporation. This governmental agency, in cooperation with the Agricultural Adjustment Administration, purchases surplus agricultural commodities for distribution to the unemployed and their families. It transfers surplus foods and other farm products directly to needy people, in such a way as to increase the farmers' net return. Agriculture's difficulties result in part from production in excess of consumers' needs and in part from underconsumption. Low farm prices partly reflect the curtailed demand of the unemployed. By diverting excess supplies to those who cannot buy, the Government helps farmers to get better prices from those who can buy.

Funds are available to the Federal Surplus Relief Corporation from congressional appropriations and from loans from the Reconstruction Finance Corporation. Proceeds of processing taxes levied on farm products under the agricultural act may partly finance the operation where it appears that the resulting improvement of the farmers' market, through the reduction of surpluses, will justify such action. For some products farmers will obtain better returns after a portion of the supply has been diverted. They will get more for what remains for disposal through the usual commercial channels than they can possibly obtain with these channels glutted. There may be some commodities that would not respond in that way to the diversion of supplies from commercial to charitable uses. In such cases the Administration would not be justified in attempting to finance the operation through processing taxes, but it could properly use funds available from other sources.

This policy strikes at the cruel paradox of want in the midst of plenty. Farmers particularly are conscious of this paradox. They approve the distribution of surpluses to the needy and merely ask that the Nation as a whole shall bear the cost. In periods of great overproduction in agriculture, the farmers themselves carry most of the burden of relieving distress. They do it through the harsh necessity that compels them to part with their entire production at less than cost. Practically, they give away much of what they produce. Hence the new relief program serves agriculture in two equally important ways. It partly frees farmers from a continual unfair drain upon their diminished resources and satisfies their feeling that people should not be allowed to starve when granaries and warehouses are bursting.

PERMANENT CONTROL OF AGRICULTURAL PRODUCTION

The present program for readjusting productive acreage to market requirements is admittedly but a temporary method of dealing with an emergency. It could not be relied on as a permanent means of keeping farm production in line with market requirements. From a national standpoint it has the disadvantage that it takes out of production both the efficient and the inefficient areas. Moreover, it carries no insurance against the expansion of production through bringing new lands into cultivation under the stimulation of the better prices achieved by curtailing production in areas now cultivated. With separate programs of control for different products, it is difficult, without severely restrictive measures, to avoid the shifting from one controlled product to other products. The need of annual campaigns for acreage reduction and of the various measures to prevent evasion involves complicated and expensive administration.

A temporary and varying reduction in the productive acreage seriously disturbs the farm economy; it may modify established rotations and feeding practices; it requires readjustments in the relationships of landlords and tenants, which may be disadvantageous to the tenants; and it necessitates the disuse or less effective use of the labor, machinery, work stock, and the equipment acquired to farm larger acreages. Overhead costs frequently cannot be curtailed in proportion to the reduction in farm operations.

Generally it must cost more to induce farmers to keep a portion of their farms temporarily idle than it would cost to rent a corresponding acreage by taking over entire farms. This may not be the case where the aim is to reduce the acreage in a single crop, in sections where that crop is but a small proportion of the total productive acreage in the farm. If, however, the aim is to reduce the farm plant as a whole, in order to deal with a tendency toward surplus production in the principal staple crop and livestock products, it will generally be less expensive and more economical even in such areas to acquire entire farms.

This conclusion may be illustrated by the situation in 14 hard winter wheat counties of Kansas, in which wheat occupies over four fifths of the land in harvested crops. Under the present recovery plan the cost of reducing the wheat acreage by 15 percent is between 17 and 36 percent of what it would cost to buy the farms outright and six times as much as owners leasing for the very liberal rent of one third of the gross production would get from their share of the wheat priced at 50 cents on the farm.

Relative Cost of Leasing and Buying

In the long run, it would be cheaper for the Government to purchase farms than to lease them. For one thing, the rate of interest that the Government pays for money is considerably less than the percentage of rental value of farms to the capital value. In 1932 for the United States, exclusive of the Cotton Belt, cash rentals of farms less taxes averaged between 6 and 6½ percent of the value of the farm real estate. In the Cotton Belt the average was higher but was complicated by special conditions of risk and responsibility. In the North Central States, where in general there has always been a tendency toward a comparatively low ratio of net rentals to values, the ratio in 1932 ranged by States from 4.33 to 6.09, averaging a little over 5 percent for the 12 States. Furthermore, the Government purchase of farms would give greater permanence of control of particular areas and a greater possibility of developing a consistent and stable policy of utilization.

This comparison of the relative cost of acquiring entire farms and of subsidizing acreage reduction within operated farms does not necessarily mean that it would be desirable to purchase immediately an area of farm land corresponding in total productivity to the area removed from cultivation under the present emergency program. That would avoid one difficulty but would create another. While reducing the farm surplus, it would increase the labor surplus. The emergency program for reducing farm production is dictated partly by the existence of huge surpluses gradually accumulated. When these surpluses diminish, less restriction of production will be necessary. Restriction will become still less necessary as the domestic demand for farm products revives.

But our farm plant will probably continue to be too large for commercial production. The economic conditions and restrictive policies that have curtailed the European demand and the subnormal domestic demand may not change for the better quickly. It is therefore necessary to consider gradually reducing and controlling the size of the farm plant as a whole as a means of supplementing and in some measure displacing the emergency policies. This can be accomplished by removing from cultivation the farms which are economically and socially least desirable, such farms as are loosely termed "submarginal."

Advantages of Eliminating Lean Acres

Eliminating the lean rather than the fat acres is desirable for many reasons besides that of reducing production. Generally, the cultivated areas most subject to water or wind erosion are those which would also be classed as poor, frequently as a result of previous erosion. In many cases, under present conditions the individual farmer cannot do what is necessary to check erosion. In certain parts of the country there are poor lands in use which may be regarded as "nuisance" areas from the standpoint of the community. These include lands that serve as breeding grounds for insect pests and plant diseases and isolated farm units within national forests. Such isolated farms sometimes enhance the fire hazard and complicate problems of administration. In some areas the natural resources are so ill-adapted to farming that the standard of living remains at a poverty level. These areas depend from time to time on governmental seed loans or relief funds.

Poor schools and roads usually characterize areas of poor farm land, though sometimes more prosperous sections contribute to the school and road funds of the poor districts. In other cases the provision of schools and roads has involved the assumption of a local tax burden tolerable only in prosperous times. In many such areas during the depression there has been a serious breakdown of the local fiscal system, aggravated by tax delinquency, farm abandonment, and the passing of forest resources. A program for gradually removing poor farming areas from cultivation appears desirable to correct many economic and social maladjustments of both local and national significance, as well as for bringing our farm plant to manageable proportions.

In line with this principle is an agreement between this Department and the Public Works Administration, which provides that, for every acre of new land brought into cultivation through reclamation by public works' funds, money shall be made available to take out of cultivation an area of poor farm lands of corresponding productivity. In general the acreage of poor farm land thus removable will amount to several times the area of newly reclaimed land. Funds will be made available for studies to determine the areas that should be removed from cultivation.

In this work the Department will have in mind not only a reduction of the farm plant but also the other considerations above mentioned. It will consider the institutional and fiscal readjustments which the withdrawal of land from cultivation will involve. Land socially and economically unsuited for farming may be considered for purchase by the appropriate public agency for use as public forests, parks, or regulated grazing districts.

Federal and State Cooperation

Land-use planning vitally concerns State and local agencies as well as the Federal Government and should be developed in close cooperation with such agencies. It is important to keep poor new land out of cultivation. Short of public purchase, the main practicable method is through State policies of grants-in-aid and the exercise of the zoning power. These and other considerations emphasize the importance of Federal cooperation with State and local authorities.

When there is much unemployment, it is not always advisable to remove families even from poor land, where they may at least get food, shelter, and fuel. But many families are stranded on poor land and would welcome opportunities for favorable relocation. Recovery from the depression will open opportunities in industry for some now living under bad conditions in the country.

But the problem of farm people stranded on land too poor to furnish a decent living represents but one phase of the problem with which economic planning must reckon. In our eastern coal fields at least 200,000 miners are permanently displaced, through the mechanization, exhaustion, or closing of the mines. There are said to be 5,000 stranded copper miners in Arizona and 15,000 oil-field workers stranded in the Southwest. There are many lumber towns in the State of Washington left to a precarious struggle through the removal of the timber.

Many of these workers came originally from the farm. Industry and the cities formerly provided an outlet for thousands of rural young people annually. In 1880, 71 percent of the population of the United States was classed as rural, in 1930 but 44 percent.

Industrialization and the rush to the cities may have gone too far. We may be entering a prolonged period of urban unemployment. Older workers have difficulty in retaining the jobs for which they were trained. A miner is said to be through at 45. Many industrial and commercial concerns draw the employment line at about 45 to 50. But such men should not be thrown on the scrap heap. There are many kinds of work which they can do for wages, at least on a part-time basis. The younger workers face the shorter work day and work week. How much unemployment is technological and how extensive unemployment from this cause will be in the future, we cannot tell. In the long run the men displaced by machinery may be needed to make the machines that displace them. But meanwhile they must eat.

Underlying both urban unemployment and agricultural distress is the need of fundamental readjustment to a changed condition. The subsistence problem is not confined to the cities. One out of seven rural families now receives relief. These people, urban and rural, should have a chance for self-help, a chance to become self-supporting.

Congress attacked the problem in section 208 of the National Recovery Act. This section provided $25,000,000 to redistribute population through loans or other aids to the purchase of subsistence homesteads. Thousands of city people, unable to get work, have struck out for themselves and gone back to the land. But a wholesale and blind movement is hazardous, both to the participants and to agriculture and rural communities. It is necessary to guide and direct the return to the soil, as well as to aid it financially, a task which has been entrusted to the Department of the Interior.

In the program to carry out the purpose of section 208 emphasis will be placed on experiments in aiding workingmen to establish garden homes within commuting distance of factory and office, so as to provide them with shelter and an opportunity to raise much of their own food, and at the same time permit them and the members of their family to work in industry and trade. Such a movement "halfway back" to the land has already gone on for a number of years in New England. The automobile, the modern highway, and the electric power line facilitate it. It provides a measure of security in times of unemployment. It should not injure the commercial farmer by seriously adding to the surplus of our agricultural staples. Indeed it may aid him by giving the worker security and stabilizing urban purchasing power.

The program may also encourage the decentralization of those industries that are economically adapted to small units located in the smaller towns and villages. Centralization in huge plants appears to have gone too far. Moreover, this country imports many products that could advantageously be manufactured here in small plants. Plans for redistributing population should include the relocation of farmers now stranded on hopelessly poor land. This should be done in connection with a program for retiring such lands from cultivation. In the past such badly located farm people continually drifted to the cities.

If much urban unemployment should persist for a long time, farm policy may be required to provide for the thousands of young people who annually leave even good farms for the cities. The annual increase in the Nation's population now depends mainly on the natural increase of the farm population. This averages about a half million a year. For a decade preceding the present depression, the resulting annual surplus of farm people was drained away into other employment. Failing reopening of this outlet, steps must be taken to provide means whereby the half million farm people who each year reach working age may earn a living. It may be necessary to modify our former ideal of a highly efficient commercial agriculture, and to facilitate so-called "subsistence farming." Such farming would have less commercialism but a greater degree of economic stability than now prevails in many farming areas. Such a policy, as well as all policies to aid in placing more people on the land, would have to avoid as much as possible intensifying agricultural competition.

SCIENCE IN PRODUCTION AND IN DISTRIBUTION

In these efforts to balance production with demand, and to prevent useless farm expansion, it may seem that the farmer has a quarrel with science; for science increases his productivity and thus tends to increase the burden of the surplus.

Some farmers take this view. They believe we got into the present economic jam partly as a result of technical efficiency. They ask why Government agencies help farmers to grow two blades of grass where one grew before and simultaneously urge them to cut down their production. They declare it is almost criminally negligent for a Government to promote an increase of production, without facing the results of that increase. These ideas lead to something of a revolt against science, and to demands for a halt in technical progress until consumption catches up with production.

It is undeniable that science creates problems; but the remedy is not less but more of the disturbing ferment. What we need is not less science in production, but more science in distribution, and this means distribution of wealth as well as of the physical products.

Science has magnificently enabled mankind to conquer the problem of producing enough to go around. It has now to help us utilize the increased productivity.

This is the special province of economics. It is a difficult field, because the data include facts of psychology, of politics, of history, of race, and even of religion, as well as of production and demand. Reducing such diverse facts to order is harder than discovering relationships among chemical elements isolated in a test tube. The economist cannot fix his material; he must deal with the living, changing, dynamic world. But the difficulty does not excuse evading the problem. It cannot be evaded.

Gain in Farm Productivity

In agriculture, science has increased tremendously the productivity of the farm operator, without giving him equal help in disposing of the result. Note a few cardinal facts. Our total crop acreage showed no increase in the decade from 1919 to 1929. This was the first decade in our history that recorded no expansion. The number of horses, cattle, and hogs on farms declined somewhat, and there was a decrease also in the number of farms and in the farm population.

Yet the farm output, instead of declining, increased amazingly. It rose about 20 percent, whereas the country's population increased only 16 percent. In consequence our people, during the first half of the decade at any rate, lived better than ever before. They consumed about a fifth more milk per person, a sixth more pork, and probably a fifth more fresh vegetables and fruits, but less corn, rye, and wheat bread. The increased farm production, since it took place in a declining market, impoverished agriculture.

The wheat farmer in the Great Plains has at his command in the tractor and the combine the power of 300 men. He can cultivate 1,000 acres and feed 2,000 people. The corn grower has new inbred strains of corn developed in this Department and in the State experiment stations which give promise of producing the Nation's present supply of corn on 90,000,000 acres instead of 100,000,000. By fertilizing only to a profitable extent, and by a more general practice of efficient crop rotations, it would be possible to get the present corn supply from 70,000,000 acres. Moreover, this saving of land would save half a billion hours of man labor annually and would save from erosion hilly land which is now washing into the rivers.

Cotton-picking machines now being used in Texas and Mississippi seem likely to be perfected. If they become a commercial success, the acreage of cotton that one man can handle will increase to 100 or 200 acres. The present average is 20 acres in the eastern Cotton Belt and 40 acres in the western Cotton Belt.

In 1929, according to the census, about half the farms in the United States produced 90 percent of the products "sold or traded." This implies that nearly half the farmers are not needed to supply even the present commercial demand. They may be usefully occupied, to be sure, in supplying part of their own wants. Further scientific progress will enable a still smaller number to produce as much as the market now takes.

Science has achieved great triumphs in animal industry. Records of the dairy herd-improvement associations partly tell the story. These associations are organizations of dairy farmers who employ cooperatively a tester to determine the amount of milk and butterfat produced by every cow owned by their members, and to compute the cost of feed. The records help in the selection of herd sires, in the rearing of young stock, in feeding and care, and in herd culling.

In 1920 the production of butterfat per cow in the dairy herds owned by the members of 452 associations averaged 247 pounds a year. By 1928 the average had risen to 284 pounds; by 1930 the average for more than half a million cows on test was 302 pounds per cow; and by 1932 it was 310 pounds. Twenty-five years of record keeping showed a gain of 95 pounds per cow.

The dairy herd-improvement program benefited dairy practice generally. In 1900 the average production of butterfat per cow was 145 pounds a year; in 1930 it was 180 pounds. In the 5 years preceding the depression the number of dairy cows in the United States was only about 5 percent greater than it was 10 years before. The production of milk was fully 25 percent greater, yet the consumption of feed increased probably less than 15 percent.

It was science and education that brought about this increased efficiency—science expressed in plant and animal breeding, in improvements in animal husbandry, and in the use of machinery and power on the farm; and education carried to the farmer by Federal and State agencies, and by the agricultural press.

Scientific Victory Incomplete

Nevertheless the scientific victory was incomplete. When science increases the farmer's power to produce without enabling him to regulate his production, and without finding new uses for the land

and labor which the improved technic releases, it does only half a job. The remaining half is to match the technical achievement with economic achievement, and to parallel the progress in production with progress in distribution.

Gains in technical efficiency, if not supported by scientific adjustments in our economic system, throw society out of balance and bring its complicated mechanism to a grinding halt. We need economic machinery corresponding in precision, in power, and in delicacy of adjustment to our technical machinery.

Population statistics warn us that the problem is urgent. Both in the United States and in Europe the birth rate has dropped; and this country has checked immigration. Ten years ago our population was increasing nearly 2,000,000 a year; now the increase is only about 800,000. England and Germany, formerly great markets for American farm products, will probably have stationary populations within a decade, and eventually declining populations. It now appears that the population of the United States will probably cease to expand about 20 years hence. It is significant, too, that the consumption per capita of many farm products has shown a decline in recent years—a 10-percent drop since 1928. How can we reconcile increasing productivity in agriculture to a declining demand? This is the supreme question of our time.

It is vain to propose letting inefficiency take over the job of reducing the volume of the surplus. Man is not built that way; if he were, he would still be in the primeval mud. Putting a brake on science is not the solution. Farmers realize that competitive necessity forces them to keep up to date. Failure to do so puts them at a disadvantage not merely in world trade but in home trade, because efficient production from abroad enters into the situation. A return to more primitive methods of production, or even neglect to keep abreast of average technical efficiency raises costs more than it raises prices.

The problem is to adjust production to the existing effective demand, to divert productive power from the creation of surpluses to the satisfaction of wants, and to open new channels into which economic energy may profitably flow. As an emergency-relief measure, it is fitting to reduce production; but the ultimate solution requires an increase in consumption, so that we may establish an economic balance that can be maintained.

Problem of Distribution

It is essentially a problem of distribution. We have surpluses, in industry as well as in agriculture, largely because the laws that govern the distribution of income cause a polarization of wealth and poverty, a piling up of purchasing power at one end of the social scale. In consequence a majority of the people spend all their money before they have satisfied their wants, while a minority satisfy their wants long before they have spent their money. There results an unemployed block of purchasing power which tends to be transformed into capital and to go back into production instead of entering the market for consumable goods. This makes the surplus situation worse.

Potentially, the purchasing power existing at any time equals the supply of goods; but it does not necessarily enter the market for those goods. To make it do so, it must be joined to need or desire. When purchasing power gravitates away from need or desire, it lies idle or runs to waste in speculation and bad investment. How much more socially intelligent it would be to redistribute purchasing power in such a way as to put it effectively to work. Unemployed purchasing power means unemployed labor and unemployed labor means human want in the midst of plenty. This is the most challenging paradox of modern times.

COTTON-ACREAGE REDUCTION

The need was specially acute this year for controlling the production of cotton. In the marketing season 1932–33 the total supply of American cotton was no less than 26 million bales, half of it from the carry-over and the other half from the 1932 production. Our cotton production had been maintained at a fairly high level since 1929, despite a sharp drop in the world's consumption of American cotton. In 1930–31, for example, the consumption was only 11,000,000 bales, as compared with 15,000,000 in 1928–29. Cotton prices to farmers in February 1933 averaged 5.5 cents a pound. The low point was reached at 4.6 cents a pound in June 1932.

These figures may be compared with the prices received by farmers in the years immediately following the war, because farm expenses including interest and taxes had declined only moderately from the post-war peak. Farmers received an average price of 35.2 cents for their cotton in 1919–20, of 28.7 cents in 1923–24, and 18 cents in 1928–29. In the general price situation that prevailed in the first half of 1933, cotton prices to farmers should have averaged 12.7 cents a pound to give cotton its pre-war exchange value. This price for cotton was therefore provisionally the objective of the cotton-adjustment program.

Circumstances early in 1933 pointed to a worsening of the cotton-surplus problem. Growers felt driven, despite the disastrously low price of their staple crop, to increase the acreage devoted to it. They had no other cash crops to which they could profitably turn, and the necessity to grow something for revenue was compelling. The low unit price of cotton obliged the farmers to think about having more units to sell. Accordingly, they planted 40,798,000 acres to cotton, as compared with 35,939,000 acres harvested in 1932.

In view of the peculiar conditions, this was not an abnormal increase. It was, however, somewhat larger than price analysis had predicted. It was renewed evidence that the law of supply and demand, which is supposed to curtail production when prices are low, does not always have that effect, particularly in agriculture. Under extreme pressure farmers operating competitively act in a manner exactly contrary to their collective interest. They increase production when it should be decreased. Many former attempts to adjust farm production came to shipwreck on this particular reef. Farmers who were inclined to cooperate faced the knowledge that if they did they would have less cotton to sell than usual, whereas noncooperators would probably have more.

Above-Average Yields Indicated

On the acreage originally planted to cotton this year, average yields would have given a production of 13,900,000 bales or thereabouts. As the season advanced, it became clear that the yields would be above the average. The October report of the Crop Reporting Board estimated 205.3 pounds per acre as compared with a 10-year average of 167.4 pounds. Had the crop been allowed to mature on all the acreage planted, the production would have been approximately 17,135,000 bales (according to the indicated yield as of October 1)—the second largest crop on record. With such a crop, the price of cotton would inevitably have declined again. Against the weight of an increasing supply already much too large, the commodity could not have held its place in the general advance of prices that has resulted from the Government's monetary and industrial policies. While other farm-commodity prices were climbing, cotton would have entered upon a new decline. It need scarcely be said that such a development would have meant utter ruin for thousands of cotton growers and additional distress for the South and for the Nation as a whole.

Shortly after the enactment of the Agricultural Adjustment Act, the Adjustment Administration held a conference with the directors of extension of the 16 cotton States. They recommended action under the new law to eliminate at least 30 percent of the planted cotton acreage. At another conference, growers, manufacturers, and handlers of cotton made a similar recommendation. Accordingly, on June 19 the Administration announced a program of cooperation between the Government and the cotton growers. It offered two plans: (1) A cash payment per acre to the individual farmer in return for an agreement to reduce his cotton acreage; and (2) a cash payment per acre plus an option to buy, at 6 cents a pound, a quantity of Government-owned cotton equal to the farmer's reduction in output. These payments were to vary with the prospective yields per acre. More was to be paid for high-yielding than for low-yielding land. It was the theory of the option plan that cotton, as a result of the acreage reduction and also of the Government's general recovery policy, would rise in price sufficiently to give the option holders a satisfactory profit.

These plans, the Adjustment Administration announced, were to go into effect if a sufficient number of cotton growers offered to reduce their acreage. It was felt that the prospective output should be reduced at least 3,500,000 bales, the normal production of about 10,000,000 acres. Through the Extension Service and with the assistance of 22,000 voluntary workers, it proceeded to sign up growers in formal contracts to reduce their acreage in return for specified payments. This was a tremendous task. The physical difficulty of getting contract forms and other data into the field taxed available facilities to the utmost. It became necessary to extend the time originally allowed for the farmers to make offers of acreage reduction. Offers were received up to midnight July 12. The signing of each offer required recommendations from the county committee and the county agent, after proper inspections of the acreage involved. Everything possible was done to prevent fraud and to keep producers from overestimating their yields. Farmers responded generally. On July 14 the Administration announced that sufficient acreage had been offered to warrant putting the program into effect.

Estimated Acreage Withdrawn

Estimates in September indicated that 1,031,000 cotton producers had contracted to withdraw 10,396,000 acres, on which the production if the crop had been allowed to mature would have exceeded 4,300,000 bales. The acreage offered, and the reduction in production, ran materially above the minimum established as necessary. The cash payments averaged about $10.60 an acre and aggregated approximately $110,000,000. Straight cash payments varied from $7 an acre for land producing 100 to 124 pounds to $20 an acre for land producing 275 pounds or more per acre. Under the plan calling for a cash payment plus a cotton option, the cash payments ranged from $6 an acre for land producing 100 to 124 pounds, to $12 for land producing 275 pounds or more. Participants in the option plan will have in addition the difference between the purchase price and the selling price of the option cotton. There has been a margin in their favor consistently since the plan went into effect. The option contracts provide that holders may not dispose of their cotton at less than 9½ cents a pound prior to December 1, 1933. They may call their options at any higher price up to that date or may renew them up to May 1, 1935, by paying the carrying charges (estimated at 40 cents a month per bale). This applies to the period from May 1, 1934, to May 1, 1935.

In preventing the cotton planted on 10,396,000 acres from maturing, the growers who cooperated with the Administration besides strengthening the cotton market, manifested a spirit that augured well for the success of future control operations. They estimated their prospective yields very moderately. As already noted, the average yield of cotton per acre for the United States as a whole was estimated by the Crop Reporting Board in October at 205.3 pounds. The October forecast of production was 12,885,000 bales. On the acreage withdrawn from production, the withdrawal contracts fixed the probable yields at an average of only about 184 pounds. This is the more striking when we bear in mind the fact that the worst lands were rejected.

The Administration accepted no land that did not give evidence of producing more than 100 pounds per acre. It refused flooded or droughty land. In checking the farmers' offers, the Administration obtained statements of the 1932 production and checked these statements at the gins. Some farmers reported their 1932 production as less than the gin records showed they had ginned. Growers complied wholeheartedly with the need to destroy completely the cotton on the acreage covered in their contracts. Reports of failure to comply with the requirements of the program were extremely rare.

Cotton Processing Tax

In accordance with the provisions of the Agricultural Adjustment Act, the Administration announced a cotton processing tax effective August 1. It fixed the tax at 4.2 cents a pound, the difference between the farm price of cotton on June 15 and the fair-exchange value of cotton on that date. As defined in the law, the fair-exchange value is a price that will give cotton a purchasing power in terms of other commodities equaling its purchasing power in the pre-war base period—August 1909 to July 1914. The processing tax is intended to defray the costs of the acreage reduction. It applies to the first domestic processing of cotton—specifically to spinning, manufacturing, or other processing except ginning. It does not apply to linters. In addition, the Administration placed a tax equivalent to the processing tax on all articles manufactured wholly or chiefly of cotton that were in stock on August 1, 1933. It excepted retailers' stocks, unless they were held until September 1. Retailers therefore had 30 days in which to dispose of their stocks without paying the tax.

It is expected that these taxes, in the main, will be passed on to consumers, whose power to pay them will be increased by the Government's general recovery program. There is no way to determine the extent to which prices to consumers will be raised. Consumers' prices have risen already from the low levels that prevailed last winter. Part of the increase may be attributed to the increase in manufacturing costs necessitated by adherence to codes of fair competition. Part may reflect inflation. Part may have resulted from the processing and floor-stocks taxes—it is impossible to measure separately the relative influence of these different factors. However, the taxes are low compared to the total cost of cotton goods to consumers. Furthermore, the law requires the Agricultural Adjustment Administration to prevent unfair pyramiding of the tax in consumers' prices.

Some Probable Results

As to net results of the whole campaign, it is too early to speak. Nature produced cotton abundantly this year and thus complicated our task. Cotton suffered much less from the drought than did the main northern crops. The new crop, added to the carry-over of something less than 12,000,000 bales, gives a supply of American cotton larger than that of any year prior to 1931. It gave a supply of approximately 10,000,000 bales in excess of the world's consumption in 1932–33, and far above any probable consumption in 1933–34. The reduction of acreage this year merely prevents the surplus from growing oppressively larger. It does not by any means sufficiently reduce the oversupply, and the situation in the Cotton Belt remains critical.

In all probability, however, the withdrawal of 10,396,000 acres from production benefited the cotton-price situation more than may appear. It is a truism that overproduction depresses prices cumulatively. Each addition to the supply forces prices down with a disproportionately increasing effect. The same principle works in the opposite direction. Removing the top of the surplus has a proportionately greater beneficial effect than removing equal amounts later. It may reasonably be concluded, therefore, that the 1933 cotton-reduction campaign achieved as much as could have been expected, in view of the unexpectedly large production on the acreage remaining for harvest. More important still, it blazed the trail for more extensive efforts in the future.

It must be remembered that the 1933 campaign started under certain unavoidable handicaps. In the first place, it followed an unusually liberal crop-production loan program, which had been set in motion earlier. There is nothing essentially wrong about arranging production credit for the farmer, but it needs to be linked up with the acreage-reduction program. Hereafter it will be important to handle production credit in harmony with crop control. Secondly, the season was far advanced before acreage-control action could be taken. The Agricultural Adjustment Act was approved May 12, but essential amendments to it in the National Recovery Act did not become law until June 16. By that time much of the cotton crop was in the ground. As previously mentioned, it was July before the acreage-reduction plan went into operation. Up to that time the farmers had obeyed the customary incentives to maintain production as an offset to low prices, and the amount of acreage reduction necessary to influence the market in the required degree was much greater than would have been the case had it been possible to announce the plan before planting time.

Cotton prices started to advance in the spring, along with the decline in the gold value of the dollar and the growing evidence that measures would be undertaken to control the production. By the beginning of the 1933–34 marketing seasons, prices to producers had risen to above 10 cents a pound. From the peak, however, the prospect of heavy yields and other influences caused a reaction. In consequence the fair exchange value, at this writing, is not in sight.

Need for Long-Time Program

Certain conclusions may be drawn from these facts and from the general cotton situation. It is necessary to have a cotton program covering not simply one season but several seasons. The cotton surplus was not created in one season, nor will it be removed in one. Adjustment of cotton production to the demand is essentially a long-time proposition. It cannot be achieved by hasty improvisations based on weather indications at the beginning of a single season.

In the 1926–27 season the United States produced 17,978,000 bales; in the succeeding season it produced only 12,956,000. Yet the harvested acreage dropped only from 44,616,000 to 38,349,000 acres. It was nature that mainly determined this great change in the volume of production. Such facts are common, and growers are so impressed by them that they are often pessimistic as to the possibility of regulating production. In the partnership between man and nature, they imagine that nature has the deciding voice.

This is not the case. It is only for brief periods that nature seems to decide the matter. In the long run the action of the weather and other natural influences is surprisingly uniform. Favorable conditions in one season offset unfavorable conditions in another. Over a term of years the deciding factor in the volume of production is a controllable factor, namely, the acreage. In the period 1898–1902 the cotton area of the United States averaged 25,675,000 acres, and the production 10,176,000 bales. In the period 1927–31 the cotton area averaged 41,036,000 acres and the production 14,657,000 bales. Production increased with the acreage, falling a little behind because the invasion of the bollweevil and other factors reduced yields somewhat but remaining in a very stable relationship with the acreage. Over a term of years the growers decide how much cotton shall be produced.

As an emergency proceeding, the course taken in 1933 met the requirements successfully. It need not on that account be taken as the necessary basis for a long-time policy. Farmers this year plowed up cotton after it was planted, an action much against their instincts. It seems obviously preferable to have an agreement in advance, so that what should not be grown will not be planted.

Plan for 1934 and 1935

The 1933 program prevented a disaster, but it was only the first step in the control of cotton production. It is planned in 1934 to limit the acreage to approximately 25,000,000 acres.

At conferences with representatives of the Agricultural Adjustment Administration growers and others interested endorsed the plan, which may be extended into the 1935 season. A committee representing nine cotton-growing States recommended immediate announcement of the program, so that growers would have ample time to prepare for it. Accordingly, the Administration issued an outline of the project on September 22.

It is intended to reduce the number of bales or the net production, and the allotment principle is applied. Acreage rentals will be paid on the land left out of production, plus benefit payments in amounts tending to give participating producers an income representing prewar exchange value on the domestically consumed proportion of their crop. It sets 25,000,000 acres tentatively as the figure to which the total cotton area should be reduced, but the real object is a decrease in the output. The plan will be administered with that end in view.

Acreage to be planted will be allocated among cotton-producing States on the basis of a ratable proportion of the 5-year (1928–32) average. To each county will be allotted its ratable proportion of the State's average.

County allotment associations will be formed to allocate to each farm operator his proportion of the county allotment. If land has not been planted to cotton continuously, the production of adjacent or similar land will furnish the basis for allotments and payments. The Secretary of Agriculture may prescribe uses for the acreage rented and may limit or restrict the crops to be produced thereon.

No rental or benefit payments will be made in advance of the actual planting. The amounts of such payments will be determined by the county association, subject to the approval of the Agricultural Adjustment Administration.

Producers must apply for membership in the county associations and must offer to enter into acreage-restriction contracts. Membership will run for 2 years and will obligate members to comply with any requirements which the Secretary of Agriculture may make as to acreage reduction or crop production for 1934 and 1935. Regulations for 1935 will not require an acreage reduction exceeding 25 percent of the 5-year average and will allow compensation on the same basis as for 1934.

Benefit payments on domestic allotments will be made, not on the total acreage planted but on the production for domestic consumption. In the 5-year period ended July 31, 1933, the average annual domestic consumption of cotton was approximately 5,565,000 bales. This quantity of cotton, allocated to the counties and thereafter to the individual producers ratably, establishes the basis for the payments.

If the price for the season plus the rental for the land taken out of production fails to bring the farmer's income from his share of the domestic consumption up to the parity price, he will receive a supplementary cash benefit tending to make up the difference.

WHEAT-ACREAGE REDUCTION

As previously noted, the wheat producers of the United States faced a gloomy situation in the early days of 1933. This country had accumulated since 1928 a supply of wheat from 125 million to 260 million bushels above its normal supply. This surplus constituted more than half the world's surplus of wheat. It disrupted and disorganized the wheat-price structure and impelled foreign countries to impose trade restrictions as a protection to their own growers. Our wheat carry-over at the end of the crop year 1932–33 reached the record figure of 363 million bushels. The foreign market had practically vanished. These circumstances forced down the price of wheat, which on January last averaged 31.6 cents a bushel at the farm. In the 5-year period August 1909 to July 1914, wheat in this country averaged 88.4 cents a bushel at the farm. Wheat prices early this year were far out of line with the prices of goods that farmers buy, and debts and taxes remained as high as when wheat brought three times as much per bushel.

To correct this situation the Agricultural Adjustment Administration put into effect a plan for reducing our wheat production. Its fundamental purpose was to enable each cooperating grower to shift his production to a lower level and to finance him in some measure while making the change. Specifically, the program provided for adjustment payments to each cooperating producer based on his proportionate share of the domestically consumed part of our wheat crop. This proportionate share became known as the farm allotment. It bore the same proportion to the total domestic consumption that the farmer's average 3-year production bore to the average total 3-year production of the United States during the period 1930–32.

In return the producer agreed to reduce his acreage for the 1934 and 1935 crop years. It was stipulated that the reduction required should not exceed 20 percent of the farmer's acreage. Subsequently the Adjustment Administration fixed 15 percent as the required reduction for the current crop year. In putting the program into effect the Administration offered contracts to 1,200,000 individual farmers in 40 States and more than 2,000 counties. It arranged for the organization of county associations to administer the program locally. The Department's Extension Service conducted an educational campaign among farmers, and helped to organize the county associations. Committees of these associations checked, corrected, and approved farmers' reports of production and acreage and determined the individual allotments. The associations helped greatly to reduce the cost of administering the acreage-reduction plan.

Response of the Wheat Industry

Wheat producers generally recognized the soundness of the principles involved. They recalled that previous attempts at controlling production had broken down because the participants had no advantage over nonparticipants, but on the contrary suffered a disadvantage. Their action improved the market for outsiders who rushed into it sometimes with an increased volume of production. Farm organizations emphasized this fact at a hearing held in Washington on May 26 and urged wheat adjustment on the basis of individual allotments. Grain-handling agencies for the most part supported the proposal.

Reports are not yet complete as to the number of cooperating farmers. If all wheat farmers sign up, approximately $120,000,000 will be paid to them, two thirds this autumn and one third after spring planting next year.

The cooperation of all the eligible farmers would mean, with the 15-percent reduction in their individual acreage, a total reduction of 9,600,000 acres. On the basis of average yields, this would reduce production about 124,000,000 bushels.

As provided in the Agricultural Adjustment Act the Administration imposed a tax on wheat processed for human consumption, to provide funds for the reduction program. The tax, which was fixed at 30 cents a bushel, was proclaimed June 26, 1933. The amount of wheat on which the processing tax will be paid was estimated at 460,000,000 bushels, or slightly more than 54 percent of our average wheat production in the 5-year period 1928–32. The payments to farmers for the crop year 1933 were fixed at 28 to 30 cents a bushel. The Administration estimated that 515,000,000 bushels of wheat would be used for human food during the year. The Agricultural Adjustment Act exempts from the tax all wheat processed by or for the producers. This quantity was estimated at 30,000,000 bushels. There was a further exemption from the tax of 25,000,000 bushels of wheat for use, in the form of flour, by charitable organizations. These exemptions left 460,000,000 bushels net as the amount on which the processing tax will be paid.

Wheat prices and also the prices of flour and bread rose after the imposition of the tax. Some persons contended that increases resulted exclusively from the processing tax. This was obviously incorrect. Wheat damage developed about the time the tax was imposed, and there was much talk of inflation. A major speculation movement took place. For a short time May wheat options in Chicago reached almost the pre-war parity. Subsequently, the speculation flurry subsided and prices declined. The whole movement, however, obscured whatever effect the processing tax may have had upon the price of wheat, flour, and bread. It is probable that the tax was responsible for an increase of only about one half cent per pound loaf of bread.

Provisions of the International Wheat Agreement

The general international wheat agreement among the importing and exporting countries signed by many of the countries at London, August 25, is conditional upon agreement by the four exporting countries as to restriction of their production and exports. A supplementary agreement between these four countries putting the principles into specific form has not yet been placed in final form and approved.

The most significant elements in the general agreement are:

1. The major wheat importing and exporting countries of the world face the facts of the world wheat problem and agree on a program of action to seek to correct them.
2. The exporting nations agree to control exports and to adjust production so as to help eliminate the excessive carry-over of wheat.
3. The wheat-importing countries agree to cease further efforts to expand their wheat production and agree to a policy of gradually removing tariffs and trade barriers as world wheat prices rise.
4. The countries participating in the conference will establish a joint committee to watch the working out of various steps. This international committee will meet from time to time and will be responsible for seeing that additional steps are properly taken.

The signing of the agreement by the importing countries is a significant step toward effective world cooperation in correcting the wheat surplus. It binds them not to take advantage of any efforts that the exporting countries may take to eliminate the excess supplies, but instead to adjust the policies of the importing countries so as to assist in correcting the situation as rapidly as possible.

The importing countries bind themselves (1) not to encourage further increase in their wheat acreages, (2) to attempt to secure increased consumption of wheat and to remove gradually the measures now lowering the quality of bread, which measures have tended to reduce wheat consumption, (3) to make a start in reducing the wheat tariffs after the world level of wheat has advanced to a point agreed upon, and (4) to modify their other restrictions such as import quotas, milling restrictions, etc., during the 1934–35 marketing season, even if they cannot do so during the current marketing season. This latter commitment is also conditioned on improvement in the world level of wheat prices.

While the commitment on the part of the importing countries to lower their tariff after wheat prices start rising may have little significance at the moment, it may become of very great importance in succeeding years. Obviously, the nearer that the world level of wheat prices approaches the wheat prices which prevail within the importing countries, the less need there will be for milling quotas, import restrictions, etc., and the easier it will be for the importing countries to carry through their commitment for the gradual abolition of these restrictions.

Landmark in International Effort

When the wheat agreement is finally concluded it will be a landmark in international efforts to solve the economic depression. Through it both the importing and exporting countries face the basic facts which have caused the abnormally low world wheat price and agree to take definite steps to correct that situation. Prices are only symptoms; production, supplies, and consumption are the underlying factors which prices reflect.

For the past 10 years the wheat countries of the world have been following irrational policies. The exporting countries have been maintaining or increasing production in the face of diminishing markets. The importing countries have been taking steps that resulted in encouraging their farmers to expand their production of wheat, even on high-cost land, in spite of the fact that wheat could be bought for very low prices in world markets. Low prices in importing countries have not restricted production. Low prices in world markets have been accompanied by restrictive measures and falling consumption in importing countries. Now all important wheat countries face these facts and agree that the future must be different. The next 5 years may see striking progress in straightening out the difficulties which the previous irrational policies produced.

The work done on the international agreement was made possible by the Agricultural Adjustment Act. In the form it has now reached, the agreement constitutes a courageous effort to face the facts of recurrent world surpluses of wheat and to grapple intelligently with the fundamentals involved. It is an effort to break the vicious cycle of surpluses, excessive tariffs, ruinous prices, economic paralysis, and bread lines in this and other countries. This Nation took the lead early last spring in initiating steps which led to summoning the conference. The State Department worked in closest cooperation with the Department of Agriculture throughout the negotiations. Premier Bennett of Canada supported the United States in getting the exporting countries to reach an understanding on principles.

Outlook for 1934 and 1935

Two factors enter into our situation as it may develop in 1934 and 1935. Neither concerns the possibility of an enlarged foreign market, which possibility depends on purchasing power abroad as well as on the wheat-price level. These two factors are (1) the actual acreage reduction, and (2) the prospective production on the reduced acreage. The year 1933 was a year of drought and low wheat yields. Winter wheat yielded only 12.7 bushels per acre and spring wheat 9.2 bushels. The average on the entire wheat acreage was 11.3 bushels, the lowest in 40 years. Total production was 506,557,000 bushels, according to the October crop report. It is usual for yields to be high following years of drought. Favorable weather conditions in 1934 may partly offset the acreage reduction, and the Nation may again face an increase in wheat supplies. In that case prices will be likely to fall, and it may be necessary to ask, under the farmers' contracts, for an acreage reduction to the full amount of the permissible 20 percent.

Another short crop year would create an opposite situation. Wheat might rise to the parity price. Such a rise would obviate the need to make adjustment payments and would warrant dispensing with an acreage reduction or requiring only a small reduction. The wheat program is flexible enough to meet a big-crop or a short-crop situation. Wheat growers who cooperate in it will have, whether the crop be large or small, a return approaching the parity price for at least part of their production.

The wheat contract binds each man who signs it to use the land taken out of wheat in such a way that it will not add to the surplus of any nationally produced agricultural product for sale. This requirement creates a problem of alternative uses for the displaced land. The contract permits this land to be summer-fallowed, to be planted to soil-improving or erosion-preventing crops, to food crops for home consumption on the farm, or to crops for the production of livestock (or livestock products) for home consumption or use on the farm.

It is extremely important to prevent erosion on the acreage removed from wheat production and to keep out noxious weeds. Pastures are one of the most satisfactory replacement crops. Grasses give good cover to the land, prevent erosion and weed growth, and ordinarily do not increase damaging surpluses of commodities nationally sold. The land-use policy cannot yet be considered fixed. Dairy and livestock farmers have an interest in the uses made of the wheat land withdrawn from wheat. It is important not to increase the commercial production of milk or meat. Substituting pastures for wheat and corn, however, will reduce the total amount of feed available for the dairy, beef, and pork industries. Pasture offers a low-pressure method of producing milk and meat which may at this time be substituted for the high-pressure feeding method which this country developed during and after the war.

EMERGENCY HOG PROGRAM

Adjustments in hog production presented extremely difficult problems. The farm price of hogs, despite an advance of nearly 50 percent from the low point of last January, remained in August only about one half of the fair exchange value called for in the Agricultural Adjustment Act. On August 15, the farm price of hogs averaged only $3.79 a hundred pounds, as compared with a pre-war average of $7.47. Following a sharp decline in the market for speculative commodities came severe breaks in the prices of lard and dry-salt meats.

Excessive supplies during May, June, and July depressed the market in late summer. In these months the hogs slaughtered in Federally inspected plants numbered 2,750,000 more than in the corresponding months of the previous year. This was a 30-percent increase. The slaughter was about 5 percent greater than the previous record total for May, June, and July.

The movement of hog products into domestic consumption during the summer was only a little larger than in the summer of 1932. There was only a slight increase in exports. In consequence, the supply of hog products in storage increased greatly. Lard stocks on August 1 were 80 percent above those of the same date in 1932, and storage stocks of other pork products were 26 percent greater. The excessive storage stocks, hot weather in many sections, and continued heavy marketing, prevented the usual summer advance.

There was no prospect of quick improvement through the natural course of events. Supplies of hogs for market during the fall and winter seemed likely to be larger than those of a year ago. The June pig survey had indicated an increase of 13 percent in sows for fall farrowing in the Corn Belt. A sharp reduction in feed-grain supplies later suggested that the fall farrowings would be less than the June survey indicated, but nevertheless as great or greater than those of 1932.

It seemed probable also that many unfinished cattle would enter the market in competition with hog products. An extreme shortage of feed in many areas foreshadowed large market supplies of grass-fed cattle from the Western States. Because of the small corn and feed crops in most Corn Belt States, the demand for grass-fed cattle to go into the feed lots was expected to be small.

In these circumstances hog farmers recommended and the Agricultural Adjustment Administration adopted an emergency program calling for the purchase of pigs and sows due to farrow. This program involved the purchase of slightly more than 6,000,000 pigs and lightweight hogs weighing from 25 to 100 pounds at prices well above the market.

For hogs about 100 pounds in weight, the price offered averaged about $6 a hundredweight. For pigs weighing 25 pounds the prices ran as high as $9.50 a hundredweight. For sows due to farrow weighing 240 pounds or more, the Administration offered a bounty of $4 a head above the market price. It was arranged that these sows should not be subject to the usual dockage. Accordingly the actual premium per sow amounted to about $5 a head.

Methods Used in Emergency Program

Packers purchased the pigs and sows for the account of the Department of Agriculture. At the above-mentioned prices the Administration accepted only pigs in good health and showing normal growth and no body deformities. Representatives of the Department inspected, at processing plants and public stockyards, the pigs and sows purchased under this program.

The Emergency Relief Administration purchased the meat at a price sufficient to defray the cost of processing, storage, and freight, and handled it so that it did not compete with commercial supplies.

Inedible pigs and sows, or animals which for various reasons could not practicably be used for human consumption, were as far as possible converted into salable inedible products such as grease, for which the best market prices were obtained. Wherever the price for such inedible products was so low as not to return the costs of conversion the material was dumped. Misinterpretation of this procedure, unfortunately, gave rise to rumors and press stories that human food was being wasted or dumped in the river.

To finance the undertaking the Administration arranged to collect a processing tax to average about 50 cents per hundredweight on all hogs marketed during the 1933–34 marketing season. It was estimated that the pig and sow purchases by the Administration would immediately add 30 to 35 million dollars to the income of the hog farmers. In addition, the diversion of these pigs and sows to noncompetitive edible uses and to nonedible products removed approximately one and one fifth billion pounds of hogs from the fall and winter supplies. This will result in higher hog prices through the 1933–34 hog-marketing year than would otherwise have obtained, especially from January through April.

Permanent Policy Necessary

It is necessary to follow the emergency hog-reduction plan with a more effective and permanent control. This should include corn production as well as hog production. Unless the corn acreage of the United States drops sufficiently to compensate for the reduction in hog production, the production of other kinds of livestock will be stimulated. Hog farmers moreover will be tempted to expand their operations. It is calculated that for each reduction of 10 head in the output of hogs, from 7 to 8 acres should be withdrawn from corn growing.

The excessive production of corn and hogs constitutes a problem requiring a unified program of control, which is nevertheless only part of a larger problem involving all the feed crops and all livestock production.

From approximately 100 million acres of land this country annually produces an average of 2,600,000,000 bushels of corn. This year's production, according to the September estimate, will be only 2,285,000,000 bushels from 103 million acres. The average wholesale slaughter of hogs is approximately 50 million head. Heretofore, the gross value of both corn and hogs was at a maximum when the production was 10 to 20 percent below normal. It would be desirable to reduce hog production by some 10 million head, and corn production by 350 to 500 million bushels.

A plan for reducing corn acreage by at least 20 percent and hog farrowing by at least 25 percent in 1934 has been launched. The plan involves a maximum of $350,000,000 in benefit payments to farmers who participate. It was formulated after conferences with the National Corn-Hog Committee of Twenty-five, composed of producer representatives of 10 Middle Western States. Between 1½ and 2 million farmers in this country produce corn and hogs as a major enterprise. The majority of these are in Ohio, Indiana, Illinois, Missouri, Kansas, Nebraska, Iowa, South Dakota, Minnesota, and Wisconsin.

Payments to each farmer for corn reduction will be in the form of a rental at the rate of 30 cents per bushel on the average preceding 5-year production of the contracted acreage. Each participating farmer will receive adjustment payments of $5 per head on the number of hogs, equivalent to 75 percent of the average annual number of hogs from home-farrowed litters sold by him during the last 2 years. Announcement of the corn-hog program for 1934 followed the completion of the emergency hog program.

To be most effective, any long-time program should deal with the feed crop-livestock situation as a whole. This is not possible under the present act. It is possible that the act may be amended later to include other livestock and feed crops as basic commodities so that a complete program can be put into effect.

DAIRY-INDUSTRY ADJUSTMENTS

In considering the adjustments that are being undertaken in the dairy industry it is quite important to have a broad picture of the production situation. The number of milk cows on farms in the United States reached an all-time record in January 1933. The number of calves and heifers kept on farms for future milk production was likewise at or near an all-time peak. The pastures, forage crops, and concentrates with which to feed this mammoth dairy herd were temporarily restricted by the severe and prolonged drought which prevailed over wide production areas. Consumer purchasing power is not sufficiently large to absorb at satisfactory prices to farmers the huge quantity of dairy products these cows are capable of producing under more liberal feed conditions. These simple facts show plainly that many of the present troubles were already in the making before the Agricultural Adjustment Act came into being.

The number of milk cows was increasing more rapidly in the West North Central States and in the South Central States, where wheat, corn, and cotton predominate, than in any other section of the United States. The increase in numbers of milk cows for these two regions for the 1929–32 period was fully 10 percent. An important reason for this increase is found in the changes in the butterfat-feed price ratio. During the pre-war period, and even up to 1920, 1 pound of butterfat would buy approximately 20 pounds of grain on an average farm in the United States. During the postwar decade, 1 pound of butterfat would purchase about 30 pounds of grain. In December 1932 the same amount of butterfat would buy nearly 60 pounds of grain. In the West Central States this relationship reached a point at which 1 pound of butterfat would purchase approximately 75 pounds of grain, even though both grain and dairy prices were undesirably low. Fully 40,000,000 acres were formerly used for the production of grains and cotton for export markets to which trade channels have been obstructed by tariffs, import quotas, and other trade barriers. Naturally there was a tendency to use these acres for the production of products for domestic use and for which prices were relatively more favorable.

The problem of improving and maintaining the purchasing power of dairymen had two major angles. The first was to curb the former trend toward dairying, and the second was to bring about a satisfactory adjustment within the industry itself. The proper place to start was naturally to raise wheat and cotton prices and thus give these farmers an opportunity to make a living without becoming commercial dairymen. The increase in grain prices in the summer of 1933 caused the butterfat-feed ratio to drop to its pre-war level, making dairy farming less inviting. For the dairy farmer producing his own feed this merely meant that more of his income might be attributed to the production of feed and less to the conversion of these feeds into dairy products. The net result is no material change in his total income. The dairyman who buys a large part of his feed and who has found the higher feed cost burdensome should remember that higher feed costs will eventually mean less excess production and higher prices for dairy products.

Measures Being Developed

Measures that are being developed under the Agricultural Adjustment Act to improve conditions within the industry can be grouped into three classes: (1) Marketing or trade agreements, (2) purchasing operations, and (3) production control.

Practically every branch of the dairy industry has a trade agreement of some kind under consideration. Fluid-milk agreements are the most numerous. These agreements are voluntary. However, they apply to both contracting and noncontracting producers and distributors through a blanket licensing provision covering all distributors of milk and cream in the sales areas. These agreements establish prices to producers for milk used for sale as fluid milk and cream and provide the basis upon which additional or surplus milk may be purchased from producers. The wholesale and retail prices are usually specified, or at least some limitations are placed on the maximum and minimum prices that may be charged consumers. Each agreement contains a code of fair practices which agencies in the market must observe. Chicago, Philadelphia, Detroit, and Minneapolis and St. Paul were among the first markets to obtain agreements of this kind. The producers' associations, distributors, and the Secretary of Agriculture are parties to these fluid-milk agreements.

National agreements are in effect for dry skim milk and for evaporated milk. Agreements for these products do not go as far in regulating prices as those for fluid-milk markets. The evaporated-milk agreement establishes the basis for the purchase of milk used for manufacture into evaporated milk, but it does not cover milk used by these same plants for other purposes. The dry-skim-milk agreement does not attempt to regulate prices beyond the limitations of discounts and commissions on certain types of sales.

A national agreement for frozen desserts (ice cream) has been considered at a public hearing and is being redrafted preparatory to its submittal to manufacturers and distributors for signature. This agreement will be supplemented with affiliated or sectional agreements which are expected to establish minimum prices to producers.

A national butter agreement is in its final state of preparation. Like the agreement for dry skim milk, it attempts very little in actual price regulation, but prescribes the methods that will cover the procurement of butterfat, as well as the distribution and sale of the butter manufactured therefrom.

After many conferences a tentative cheese agreement was prepared by representatives of various parts of the industry. The proposed cheese agreement contains the unique feature of providing for price committees to replace the present cheese boards and exchanges.

Government Purchases of Butter

During the summer of 1933 the Agricultural Adjustment Administration acted to strengthen butter prices by arranging for the purchase and removal from the market of considerable quantities of butter for distribution to the unemployed through the Surplus Relief Corporation. Consumption through the regular channels of trade, however, was not increased, and cold-storage holdings mounted. As heavy production continued it became apparent that the purchase of butter for relief purposes was not sufficient to maintain a steady market as long as production continued to exceed consumption. The removal of some butter from the commercial market was helpful temporarily, but the inadequacy of such action emphasized the necessity of developing an effective production-control plan that would hold the output of dairy products down to the amount that would be consumed at a fair price to producers. Revenue for the removal of surplus dairy products from the market and for making benefit payments to producers in connection with the program for production control was provided for by the application of a processing tax on dairy products.

The most fundamental problem that the dairy industry has before it is that of adjusting production to a point where consumers will absorb at reasonably satisfactory prices to producers the quantity of dairy products placed on the market. This will necessitate the development of one of the most important production-control plans in the entire agricultural industry.

If production should continue to increase, very serious damage might be done to the entire dairy industry. Milk production is on a domestic basis by a very slight margin. While it will probably remain on a domestic basis, yet every increase in dairy output will result in lower prices relative to prices prevailing in foreign markets. Our butter prices, low as they are, are still above the prices of butter in Copenhagen, London, and other world markets by a sizeable margin. This situation emphasizes the necessity of controlling dairy surpluses at their source.

No degree of agitation against butter substitutes will be sufficient to turn the tide. Price raising by use of the processing tax or through marketing agreements will likely prove quite unsatisfactory to producers unless accompanied by a production-control plan. Dairy producers have no alternative except to adjust their production if they are to place themselves in a position where prices for dairy products will continue at reasonably satisfactory levels.

Excessive Distribution Charges

Dairy producers have the opportunity of placing the processing and distribution of their products on a more efficient and satisfactory basis than exists at the present time. Public hearings and investigations have revealed instances of excessive distribution charges, collusion of producers and distributors, control from superorganizations, and even " rackets " of one form or another.

Large dairy corporations have not shared with the producers and consumers the major advantages that they have had from large-scale operation and resulting lower operating costs. These advantages instead have been reflected in large executive salaries and in liberal stock dividends on capitalizations that too frequently do not rest upon intrinsic values in plant and equipment. Producers' associations, particularly in fluid-milk markets, have frequently sought market advantages for their members by entering into agreements with distributors on a basis that restricted marketing opportunities to their own members and protected distributors' profits. Such action results in higher prices to consumers in these areas and in limited opportunities for the remainder of the dairy industry. If producers' associations are to retain the full support of their members they will need to give more attention to the opportunities that exist for economies in distribution and for adjustments in charges from the farms of producers to the homes of consumers.

The threat that faces new agencies in many milk markets, the destruction of dairy plants by bombing and other means, the concessions that must be made for the privilege of selling milk in many apartment houses, are all evidences of undesirable forces at work in the distribution of milk and its products. More aggressive action is necessary to rid the industry of these undesirable elements. The Department of Agriculture, through the new powers granted it under the Agricultural Adjustment Act, is desirous of assisting the dairy industry to adjust itself to new economic conditions and to place the processing and distribution of its products on a basis that will invite the full confidence of the general public.

REDUCING TOBACCO PRODUCTION

In considering the application of the Agricultural Adjustment Act to tobacco it is necessary to recognize that there are a number of very different kinds of tobacco. Altogether 25 distinct types, produced wholly within the United States, are recognized in the official classification of the Department of Agriculture. Differences between types are due largely to the varieties of seed, climate, and methods of curing. Some of the types have similar characteristics and uses. They are grouped by the Department into the following classes: (1) Flue-cured, (2) dark fire-cured, (3a) light air-cured, (3b) dark air-cured, (4) cigar binder, (5) cigar filler, and (6) cigar wrapper.

All the types except burley (light air-cured) and the cigar types have important export outlets, and most of them are used in several different products. For consumption in the United States, the cigar types are used in cigars and scrap chewing tobacco; burley and the flue-cured types are used in cigarettes, smoking mixtures, and chewing tobacco; the fire-cured types are used in snuff and in certain classes of cigars; the dark air-cured types are used in chewing tobacco and smoking mixtures. Most brands of products utilize several different types of tobacco; consequently there is a certain amount of competition between types.

It is perfectly natural that the existing situation with respect to the principal types of tobacco should present a complex picture. Inevitably, the changing modes of world consumption, the unfavorable influence of trade restrictions, and the increasing competition of foreign-grown tobacco have been reflected on producers of the different types in the United States with varying degrees of intensity. Prices for nearly all types reached record low levels in the crop year 1931–32, following which material reductions were made in the 1932 acreage. In the crop year 1932–33 prices of burley and the flue-cured types showed considerable improvement, prices of other noncigar types also increased slightly, but prices of the cigar types declined to new low levels.

Difficulties Most Acute With Cigar Types

In applying the provisions of the Agricultural Adjustment Act to tobacco it was decided to begin with the cigar types. This decision was based largely on the fact that growers of these types were suffering more acutely from the accumulation of surplus than the growers of any other types. To this was added the further consideration that, at the time the Tobacco Section of the Agricultural Adjustment Administration was created, the planting of the 1933 crop of cigar tobacco was not as far advanced as the planting of other tobacco; consequently, it was believed that a plan for acreage reduction in 1933 could be put into operation more effectively for the cigar types.

Production of the cigar types ordinarily represents about 10 to 12 percent of the United States production of all types. It is used almost exclusively for domestic consumption. Briefly, the situation with respect to these types was as follows: (1) Cigar consumption has been declining over a period of 12 years; during the past 4 years it has declined 40 percent; (2) production of the cigar types has exceeded consumption for several years; (3) less than half the farmers had been able to sell their 1932 crops, and prices for the crops sold were about 50 percent below fair exchange values as defined in the Agricultural Adjustment Act; (4) surplus stocks had accumulated all the way from the producer to the manufacturer (at the current rate of consumption, if no cigar tobacco was grown in 1933 and 1934, there would be at the end of the 2 years but few grades of which there would be a shortage); and (5) stocks of the lower grades were larger than stocks of the better grades.

The Administration began by consulting with representatives of all branches of the cigar industry. Conferences were held with economists from the agricultural colleges of States in which the cigar types are produced, with growers and growers' representatives, and with leading dealers and manufacturers. Early in these discussions it became evident that it would be necessary (1) to define all cigar types of tobacco together (filler, binder, and wrapper) as a basic agricultural commodity, (2) to apply a processing tax to this commodity for raising revenues with which to reduce supplies, and (3) to extend the program for reduction over a 3-year period. Proposals recommended to the Administration for adoption included acreage reduction, combined with benefit payments; the removing from commercial uses of surplus farm stocks, combined with benefit payments; and marketing agreements, both with and without the licensing of buyers and establishment of minimum prices.

Projects Affecting the Cigar Types in 1933

Two projects were definitely undertaken to reduce the size of the 1933 crop of cigar tobacco, the most extensive of which related to the four districts producing the filler and binder types. It provided for reducing the acreage harvested in 1933 to approximately half that grown in 1932, and limiting the acreage in 1934 and 1935 to the same extent, or by a lesser amount, at the discretion of the Secretary of Agriculture. About 18,000 growers, or approximately 70 percent of the total number in the United States, participated in the program in 1933, and it is estimated that production was reduced about 18,000,000 pounds, or 20 percent, below what it would have been otherwise. Estimated payments to growers total about $2,500,000.

The project dealing with the wrapper type of cigar tobacco grown in Georgia and Florida provided for making payments to growers for leaving unharvested in 1933 an average of four top-stalk leaves, approximately one fifth of the total number of leaves per plant. Ninety-five percent of the growers participated in this project, as a result of which production was reduced about 350,000 pounds, or 23 percent, below what it would have been. Estimated payments to growers total approximately $85,000.

For Connecticut Valley shade-grown tobacco, a marketing agreement has been entered into between the " handlers " and the Secretary of Agriculture for the purpose of regulating the quantity of that type of tobacco entering interstate commerce. Owing to the limited outlet for cigar-wrapper tobacco, on the one hand, and the heavy investment required for production, on the other, the Connecticut Valley shade-grown industry includes less than 50 producing units. All the handlers, except one, are also producers. Thus, an agreement of this kind is peculiarly adaptable to the industry. In contrast with most agricultural products, the problem of control is relatively simple, and the coordination of group interests is not so difficult.

The agreement does not affect the quantity of the 1933 crop going into interstate commerce, as that crop was nearing maturity when negotiations were started. But for the crop of each subsequent year (until the agreement is terminated), the quantity permitted to enter interstate commerce, and therefore the quantity produced, may be limited, subject to approval by the Secretary of Agriculture. All the tobacco including the 1933 crop shall be graded according to United States standard grades and, subject to the Secretary's approval, minimum prices may be established on each grade.

Initiating the Cigar-Leaf Program

In initiating the program for the cigar types the Administration encountered but few difficulties. To most persons the purposes were obvious, and the need was so great that all branches of the industry willingly gave their cooperation. However, with the limited time available for educational work it was inevitable that some misunderstandings should occur.

Perhaps the most difficult thing for the farmers to understand was why they should be limited in the use of the land on which payments were made. At the time the plan was announced a considerable cut had already been made in the 1933 tobacco acreage, and other crops had been planted on the land taken out of tobacco. An acute feed shortage threatened in some sections. We were aware of this and agreed that in 1933 half the contracted acreage could be used for crops to be consumed directly or indirectly on the farm, without influencing the amount received in payments. Also, the grower was given the alternative of using all the contracted acreage for such crops and accepting appropriate reductions in payments. But, inasmuch as one of the primary purposes of the Administration was to retire land from production, it was obviously undesirable to make full payments to the grower and allow him to use all the land for other crops.

Another difficulty related to the base tobacco acreage. It was provided in the contract that no producer could grow an acreage of tobacco greater than 50 percent of his base acreage, although each had the opportunity of choosing one of three methods for determining that base. Since in any given district the amount of money received in payments was determined largely by the number of acres in the base tobacco acreage, many growers tried to obtain the highest possible base, perhaps not realizing that to obtain the payments would require that restrictions be placed upon the use of the land.

Our view was that in making additional adjustments of acreage in 1933, account should be taken of the adjustments already made. For this reason, the acreage planted in 1931 and 1932 was used in determining the base. If a grower had already reduced acreage before 1933, it was assumed that other enterprises had been found to substitute for tobacco; and if the acreage had not been reduced, it was assumed that no such enterprises had been found. No doubt some growers adjusted acreage in an effort to help improve the tobacco-supply situation, but probably most of them had in mind improving their own financial position.

Meeting the Flue-Cured Situation

For flue-cured tobacco, the situation differed materially from that of the cigar types, (1) because supplies were not so excessive, and (2) because exports represent so large a part of the production (around 60 percent). Owing to the more favorable supply situation, the possibilities for immediate improvement of prices were greater, but from the standpoint of total income to growers, there was danger that too large a curtailment of production would decrease income rather than increase it. Foreign production of flue-cured tobacco has expanded rapidly in recent years, and high prices in the United States will tend to increase foreign displacements.

Prior to the opening of markets for the 1933 crop, preliminary discussions were held both with growers and manufacturers. At that time it appeared that the 1933 crop would be no larger than annual consumption, and the principal buyers expressed the belief that fair prices would be paid for this crop. The July 1 forecast was for a production of 591,159,000 pounds but as the season progressed it became evident that the favorable growing conditions would result in a much larger crop (estimated in October at 705,103,000 pounds). When the markets opened in Georgia on August 1 growers expressed considerable dissatisfaction with prices, and as the prospects for production improved prices weakened. Finally, when the eastern North Carolina markets opened (Aug. 29) at levels lower than had prevailed in Georgia and South Carolina, the dissatisfaction became so great that on September 1 all the markets were closed at the request of the Governors of North Carolina and South Carolina.

During this emergency 95 percent of the growers signed contracts with the Agricultural Adjustment Administration agreeing to reduce their production in 1934 and 1935 by an amount requested by the Secretary of Agriculture not to exceed 30 per cent of the average 1931–33 production. Simultaneously, a marketing agreement was entered into with the large domestic manufacturers using more than 90 percent of the flue-cured tobacco manufactured in the United States, to establish an average minimum price (17 cents per pound) for a quantity at least equal to the quantity which they used during the last fiscal year (about 250,000,000 pounds). They had already purchased this season about 75,000,000 pounds in addition to the quantity included in the agreement.

The markets reopened September 25 with prices at materially higher levels. Buyers for export were not included in the agreement, but they increased their prices along with the domestic buyers. If the prices now prevailing (Nov. 3) continue throughout the remainder of the season, the farmers' income from the 1933 flue-cured crop will be about two and one half times the income from the small 1932 crop. The purchasing power of the 1933 crop in terms of commodities farmers buy will be greater than that of any of the last 4 years and greater than the average for the 10-year period 1919–28. In addition to the increased income from the 1933 crop, farmers who participate in the reduction program in 1934 will receive cash payments aggregating around $17,000,000, almost $10,000,000 of which will be in the present marketing year.

Other Kinds of Tobacco

Arrangements are going forward for the adjustment of supplies with respect to the other kinds of tobacco in the United States. Burley, Maryland, fire-cured, and dark air-cured tobacco, each has been defined separately as a basic agricultural commodity. These, together with flue-cured and the cigar types, comprise all the domestic types of tobacco. A separate program is being developed for each. In general, the problem is that of reducing production to bring supplies into line with consumption. The surplus is greatest in the case of burley, although supplies are above normal for each kind of tobacco.

The total production of tobacco in the United States in 1933 (all types combined) was estimated in October at 1,413,000,000 pounds. This is approximately 200,000,000 pounds above the world consumption estimated for these types, whereas the small 1932 crop of 1,016,000,000 pounds was about 200,000,000 pounds below world consumption. The carry-over of tobacco in the United States on July 1, 1933, was 2,000,000,000 pounds, which was second only to the record carry-over of 1932 and 20 percent above the 5-year average, 1927–31, when consumption was somewhat larger than at present.

Taxing the Processing of Tobacco

Processing taxes, effective October 1, have been placed on all kinds of leaf tobacco. The rates per pound of such taxes (farm-sales weight) are as follows: Cigar leaf, 3 cents; flue-cured, 4.2 cents; burley, 2 cents; Maryland, 1.7 cents; fire-cured, 2.9 cents; and dark air-cured, 3.3 cents.

The problems relating to the taxation of tobacco are complex. Notwithstanding the fact that tobacco products have long been subject to internal-revenue taxes, the levying of processing taxes raises questions involving both the equivalence and equities of tax rates.

The particular tobacco on which processing taxes are levied is taken from storage and not the tobacco on which price differentials, or fair-exchange allowances, are established. Seldom will it be found that the quality of crops and farm prices of tobacco removed from storage will be the same as the quality and farm price of the current crop. Also, during the period of aging and fermentation tobacco undergoes losses of weight amounting to as much as 20 percent of farmers' selling weights. Thus the differences of weight have to be taken into account in making the tax levy.

The application of a given rate of tax uniformly over all grades and qualities of a given kind of tobacco, on some of which farm prices regularly vary several hundred percent, may cause shifts in the consumption of these grades and qualities. Furthermore, in taxing one kind of tobacco at one rate and other kinds at different rates there is danger that competitive relationships between types may be disturbed. In dealing with all these problems the Administration will need to proceed carefully and cautiously. If it is found that, as a result of a particular taxing program, shifts in consumption are taking place, the policy will be to take such steps as may be necessary to correct the situation.

FRUIT AND VEGETABLE AGREEMENTS

In the fruit and vegetable field, the problem of adjusting supplies to effective market demand is fourfold. It is necessary (1) to prevent excessive supplies at the height of the marketing season from flooding the market and seriously depressing prices, (2) to restrict market offerings during entire seasons of large production, (3) to regulate the flow of supply to various consuming markets so as to prevent local gluts and shortages, and (4) to control long-time tendencies toward increased production.

These four aspects have long been recognized, and various attempts have been made by cooperative marketing organizations and other groups to solve them. In a number of States, clearing-house and voluntary pro rata plans have been tried. During seasons of surplus production these have been utilized to limit the flow of supply to market. Shipments have been prorated among the various shippers, who in turn have prorated salable quantities among the various growers for whom they market. In some instances these plans have received wide support, as many as 80 or 90 percent of the growers of a given commodity participating in them. But they have had the serious weakness of permitting the growers and shippers who do not participate to profit by the action of those who do. This in turn tends to cause the participants to become dissatisfied and to break down the whole arrangement.

Attempts have been made to bolster up this weakness through the passage of State pro rata laws. Such a law was recently enacted in California. Sponsors of these laws have recognized that they could be really effective only in the few instances where a single State controlled the entire supply during the marketing season.

The Agricultural Adjustment Act opened the way for the first time to make the pro rata plans fully effective. The portions of the act providing for marketing agreements covering the various agricultural commodities and the licensing of all the dealers or processors handling these commodities made it possible to bring about complete unanimity of action. Since fruits and vegetables were not included as basic commodities under the act, funds for production-control plans could not be obtained through any processing tax, and the only method by which supply could be controlled was through the marketing agreements and licensing.

Cling-Peach Agreement

The first marketing agreement to be formally approved covered the California cling-peach industry. More than 99 percent of the output of canned cling peaches is produced in California. Thus it was possible to achieve complete control of the situation through the one agreement. The total peach pack was limited by agreement to 218,000 tons, or 10,000,000 cases. In the event that the supply of No. 1 cling peaches exceeded this amount, the pack was to be allocated among the canners through an allocation board. In case the supply was less than 218,000 tons, enough No. 2 peaches to make up the difference were to be canned.

From the growers' standpoint, the most important feature of the agreement was that it guaranteed them a price of $20 a ton for their harvested fruit and an equivalent amount for that which was not harvested. Another feature was the setting of minimum and maximum prices, varying according to grade and classification, at which the canners might sell their peach pack. Funds for the purchase of the surplus crop were to be obtained from payments by the canners of $2.50 or more per ton for each ton of peaches they packed. Administration of the agreement was to be under the direction of a control committee of 10, representing growers, canners, and the consuming public.

Formulation of other marketing agreements, calculated to meet situations where the commodity is not canned but goes directly into consuming channels, followed approval of the peach agreement. One of these dealt with California deciduous tree fruits; another with apples and other tree fruits produced in Washington, Oregon, Idaho, and Montana; a third with California Flame Tokay grapes; and others with the citrus industry of California, Arizona, Texas, Florida, and Puerto Rico.

Each of these proposed agreements was intended to set up the machinery for the operation of pro rata plans under official supervision, with equitable treatment of the shippers and growers in the several shipping districts, so that all would contribute to the success of the plan by withholding a portion of their shipments when necessary.

The three citrus agreements, affecting the California-Arizona, Texas, and Florida producing areas, contained an identical section providing for a national stabilization plan, through the creation of two National Citrus Stabilization Committees—one for oranges and one for grapefruit. This plan was intended, in seasons of excessive production, to make possible the limitation of the total volume of supply going into market channels in the United States and Canada, and the prorating of this supply in an equitable manner among the various producing areas.

Other agreements were in process of formulation for other fruits and vegetables and the various nut crops.

The problem of controlling the prices of eggs and poultry is extremely complex. These commodities are produced on 5,400,000 of the 6,000,000 farms in the United States and are sold to millions of buyers. Another complicating factor is the cold-storage holdings of poultry and eggs. As in the case of fruits and vegetables, it is not possible to use a processing tax to finance a production-control campaign.

Series of Agreements Contemplated

Accordingly, the Administration seeks to complete a series of marketing agreements framed and coordinated so as to bring order into the production and marketing of fruits, vegetables, nuts, and other products. These agreements, integrated into a component whole, would (1) prevent seasonal surpluses from demoralizing the market, (2) level the flow of supply to market during the producing season, and (3) coordinate shipments so as to keep them rolling toward the various terminal markets as fast as, and no faster than, needed.

The benefits to the producer in the way of increased prices from such a coordinated system promise to be large. The costs of packing, transportation, and marketing are virtually fixed charges, and unless the selling price exceeds this amount, the grower gets nothing. Therefore a small increase in the selling price in the market may result in a substantial increase to the grower. This increase, even if passed on to the consumer in full, would mean only a small percentage increase in the retail price.

Actually, important benefits are promised for the consumer also. A well-integrated marketing system, assuring an adequate supply and preventing so far as possible the alternating gluts and shortages that now frequently occur, means that fruits and vegetables will reach the consumer in better condition.

Fruit and Vegetable Situation Better

The economic position of fruit and vegetable growers in the United States as a whole is much improved over that of last year and even that of 1931. After 3 years of declining prices and sharply reduced incomes, the producers of these commodities are experiencing a reversal of the trend this year and are receiving much more satisfactory returns.

Preliminary estimates of gross income from all fruits and vegetables indicate that the 1933 total is likely to be about one half again as large as that of 1932, about one sixth larger than the income in 1931, and only about one tenth smaller than that of 1930. Gross income from fruit and truck crops is about one fourth greater than in 1932, while that from potatoes may be about trebled and from sweetpotatoes almost doubled.

A combination of circumstances has contributed to these larger incomes this year: (1) The planted acreages of many vegetables were reduced slightly—a reversal of the tendency to expand gradually in recent years; (2) unfavorable weather conditions greatly reduced yields in many of the growing areas of both vegetable and fruit crops; and (3) there has been some improvement in demand conditions, owing to an increase in employment and to a rise in wages.

As compared with 1932, the acreage of potatoes was reduced about 4½ percent, sweetpotatoes 12 percent, and all other vegetables for fresh-market shipment about 8 percent. Of course, the acreages devoted to fruit crops remained practically the same as in 1932.

While producers have made an effort to bring the production of vegetables in line with existing market demand, untoward weather conditions this season have reduced yields of both vegetable and fruit crops in many areas. The effect of these weather factors probably has done more toward balancing supply with demand than the efforts to reduce planted acreages. Drought and high temperatures in the Central States and surrounding sections reduced yields sharply.

The Season's Production

Production of all fruits together this year is approximately 2 percent below that of 1932, which was about an average crop. Production of apples, peaches, and prunes is slightly larger than last year but less than the average, while that of pears and grapes is smaller. Production of all fruits, excluding citrus, is about 12 percent below average. Citrus crops probably will be slightly smaller than last year, but about 25 percent greater than the 1924–29 average. Two hurricanes, one striking Florida and the other southern Texas during the first week of September, did considerable damage to the citrus crops in those areas. The Texas grapefruit crop was practically wiped out.

The potato crop this year is the smallest since 1925, or about 50,000,000 bushels below that of 1932, which was an average crop. Sweetpotato production is about 9,000,000 bushels lighter than that of last year, but about 6,500,000 bushels above the average.

Production of commercial vegetables for fresh-market shipment (excluding potatoes and sweetpotatoes) is about 9 percent below that of last season and about 2 percent below the average of the 5 previous seasons, while production of vegetables for canning is about the same as a year ago but nearly 30 percent below the average production of the previous 5 years. Of the vegetables for fresh-market shipment this year, the September estimates indicated that onions are reduced about 23 percent compared with the 1932 crop; cabbage is reduced 21 percent; cauliflower, 9 percent; tomatoes, 8 percent; snap beans, 7 percent; and lettuce, 6 percent. There were some increases. The production of fresh peas was increased 23 percent and spinach 6 percent over these crops of last year.

With the shorter supplies available for market and with improvement over last season in the demand situation, prices of most fruits and vegetables are higher than they were in 1932. Fruit prices in general are up about 20 percent; potato prices are from two to three times those of last year, and there has been some advance in prices of most of the vegetables for fresh-market shipment. Most of this advance has come in the latter half of the season, at the beginning of which it became known that short crops of the major fruits and vegetables were in prospect. Also it was not until near the middle of the year that employment and pay rolls had made appreciable gains and commodity prices in general began to rise.

SPECULATION IN COMMODITIES

Speculation on the commodity exchanges handicapped the agricultural recovery program during the summer. Temporarily it pushed prices out of line with supply and demand conditions to such an extent that the need for crop adjustment seemed obviated. It raised false hopes among the farmers, belied the statistical evidence that farm production was overexpanded, and deceptively narrowed the spread between the current and the fair exchange values of wheat and cotton.

Speculative commodity prices, with minor exceptions, advanced steadily during the spring and summer. Tremendous trading activity followed the banking holiday in March. After the embargo on gold exports, the volume of trading in speculative commodities rose until it was five times greater than the average volume during the previous winter. It culminated in July with a frenzied activity in which the trading became ten times greater than that of the winter period. Prices of 10 speculative commodities showed an average advance of more than 100 percent between March 1 and July 15. Grains, hides, and rubber rose much more than that.

Speculation in grain developed with returning confidence in the business outlook and with talk of monetary inflation. As prices advanced, buyers imagined the gains would continue indefinitely. Forgetting previous reactions from unbridled speculation, the public rushed again into the speculative markets in a blind struggle to profit from an expected boom.

Undoubtedly the prime motive was a desire to anticipate depreciation of the dollar. Speculators apparently ignored other considerations. They forgot the enormous wheat carry-over and exaggerated the significance of the small current crop. Wheat, which had advanced 30 cents a bushel between March 1 and June 19, jumped another 40 cents within the next 30 days. At one time wheat futures at Chicago were 32 cents above the Liverpool futures. Open commitments in the Chicago wheat futures increased from 151 million bushels on June 1 to 200 million bushels on July 19. The latter figure was double the 10-year average for that period. Normally the open commitments moderately exceed the visible supply of grain. Last winter the visible supply exceeded the open commitments. In the speculative boom of May, June, and July last, the open interest shot up until the total for wheat, corn, and oats exceeded the visible supply by nearly twice the normal excess. This showed exceptional outside participation in the market.

This speculative activity, and the price advances temporarily produced, ended in an utter collapse. Wheat prices dropped from a high point of $1.24 a bushel for the December futures on July 18 to a low of 93¾ cents on July 20, a drop of 30 cents a bushel or nearly 25 percent in 2 days. American grain history had no previous record of so sharp a drop. Speculative buying had much to do with the advance in cotton prices that took place between March 1 and the third week in July. In that period prices in 10 spot markets advanced from 5.90 cents a pound to 11.51 cents a pound. The ensuing reaction, however, was not so sharp in cotton as it was in wheat. Cotton averaged 9.27 cents a pound at 10 markets on August 29. At this point cotton prices in terms of gold were barely higher than in March.

In October 1932 the previous administration suspended in part the reporting requirements of the Grain Futures Act. Exchange members thereupon ceased furnishing to the Government certain daily reports whereby the Government had been kept informed regarding the market operations of large traders. Instead the Chicago Board of Trade agreed to see that trading would be properly conducted and to inaugurate a reporting system of its own. In approving this change, the previous administration announced that the modification "would remain in effect until notice of hearing on the reinstatement of the regulations shall have been given or until undue price fluctuations or price levels occur which indicate manipulation of the market." It cannot be asserted positively that the market would have gone less wild had the reporting regulations remained in effect. In all probability, however, these regulations would have exercised some restraining influence.

After the slump on July 19 the Government restored the reporting requirements. The Chicago Board of Trade acted to prevent a panic. It suspended one large speculator, closed the futures market for 2 days, and fixed temporary price limits. It prohibited trading in futures at prices falling below or rising above the closing prices of the previous day by more than certain amounts. It abolished trading in indemnities, otherwise known as "bids and offers." Officials of the exchange declared that trading in indemnities had been largely responsible for the accumulation of unwieldy speculative lines. The exchange, they said, had no knowledge of the commitments thus made.

The grain exchanges on September 9 formally submitted a code of fair competition to the Agricultural Adjustment Administration, with an application for a formal public hearing.

The code as submitted proposed a sliding minimum-percentage scale for margins on futures contracts, continued the existing limitations on daily fluctuations, and provided that removal of the limits be subject to approval by the Secretary of Agriculture. It contemplated the self-policing of trading by a special force of nonmembers in each exchange, and contained clauses regulating employment conditions. It had the formal approval of the Chicago Board of Trade, the Minneapolis Chamber of Commerce, the Duluth Board of Trade, the Omaha Grain Exchange, the Merchant's Exchange of St. Louis, the New York Produce Exchange, and the Milwaukee Grain and Stock Exchange. The Kansas City Board of Trade and the Buffalo Corn Exchange announced their intention to sign the code.

The sliding minimum-percentage-margin requirements provided for a 10-percent margin for individual purchases or sales of any one grain up to 250,000 bushels, a 15-percent margin on sales or purchases of between 250,000 and 2,000,000 bushels, and a 20-percent margin for more than 2,000,000 bushels. Hedging and spreading trades, and trades offset by future trades in another grain or in provisions on the same or another exchange, were to be exempt from minimum-margin requirements.

The Functions of Trading in Futures

Trading in futures is an important part of our present system of grain marketing. A reasonable amount of speculation gives a liquid character to the futures markets and aids in furnishing a readily available means whereby grain merchants may hedge their risks. Trading in futures also serves as a barometer of prices, a reflection of market factors, material and psychological. But it is one thing to recognize a legitimate place for futures trading and another to accept uncritically all the abuses to which it may give rise.

Uncontrolled speculation, particularly uncontrolled speculation by individual large operators, destroys whatever value the system may normally possess. Such speculation, always obnoxious, becomes particularly obnoxious when the country is engaged in efforts to regulate farm production. Uncontrolled speculation does not go well with controlled production.

Government supervision has had a wholesome effect and has curbed grain speculation materially and usefully since the Grain Futures Act was passed in 1922. It has caused the elimination of many faulty practices and has led to remedial action by the grain exchanges themselves. It has met with opposition, chiefly from persons who maintain that speculation stabilizes markets and lessens price fluctuations. The most violent opposition has always come from those who profit most in commissions or desire other monetary gains from a large volume of speculative business.

Up to a certain point, speculation may have the effect of stabilizing markets and lessening price fluctuations. Beyond it, opposite results develop. Information furnished to the Government under the terms of the Grain Futures Act has shown repeatedly that uncontrolled speculation dominates price movements for short periods to the injury of the farmers and the community in general. Individuals have sometimes held speculative lines exceeding 10,000,000 bushels. Single traders have, on certain days, done a volume of business exceeding 10 percent of the total futures business done on those days. Federal supervision of grain-exchange trading is necessary, as this year's experience demonstrated anew.

It is perfectly true that improper speculation, if it takes place on the exchanges, does not wholly originate there. There is consequently no point in blaming the exchanges exclusively. Speculation has wide-spread sources among the general public, among people who want to put themselves in a favorable relation to changing values. They may realize fully that the collective result of their individual speculations may be disastrous; but they are as powerless to control the result as are farmers acting individually to control farm production. It is imperative for the Government to supervise, and if necessary to regulate, grain speculation, because such supervision is the only means of preventing abuses.

FARM INCOME FROM 1933 PRODUCTION

It is not yet possible to estimate closely the probable gross farm income from the sale and home consumption of farm commodities produced in 1933. Available data indicate $6,100,000,000 as the total. This estimate will be revised next spring, on the basis of more complete figures as to marketings and prices. Returns to the farmers will be augmented by payments from the Agricultural Adjustment Administration for the curtailment of acreage and other restrictions in agricultural production. The total of these payments is not yet definitely known. It is conservatively estimated at $300,000,000, which amount will bring the total gross income of the farmers to about $6,400,000,000. This is a substantial increase over the $5,143,000,000 received in 1932; but it is below $6,911,000,000, the income in 1931.

In the prospective increase the major factor is a sharp advance in the prices of nearly all farm products. Part of the advance was a response to a decrease in crop production, and to the resulting diminution in the volume of the surpluses. Part reflected an increase in consumer purchasing power, and an increase in the utilization of farm products by industry. Marketings of livestock, however, increased somewhat, owing to feed shortages and poor conditions in ranges and pastures. The increase in the supply of meats was accompanied by only a moderate improvement in consumer demand, and it restricted the income from livestock.

The index of farm-commodity prices advanced from 49 percent of the pre-war level on February 15 to 76 percent on July 15. It declined somewhat thereafter but on August 15 was still 40 percent above the February level and nearly 20 percent above the level of August 1932. Farm-commodity prices in the last quarter of the year are important in determining the gross farm income, and changes in this period may affect materially the estimate given above. There was a close relationship during the spring and summer between the farm commodity price level and the trend of business activity. A continued increase in industrial activity would undoubtedly mean additional improvement in the demand.

Reduced Supplies Strengthen Prices

Reduced production strengthened the supply situation. Wheat output was below normal domestic requirements, and the carry-over declined for the first time since 1926. However, the supply remained excessive. Supplies of other grains were less burdensome, though the carry-overs were large. Production in 1933, however, was greatly reduced, and the total supply of feed grains is now below the supply in any of the last few years except 1930. By taking out of production approximately a quarter of the acreage planted to cotton, the growers of that commodity reduced the season's output to a point below the world's average annual consumption of American cotton. As previously noted, however, the production and the carry-over combined constituted an excessive supply.

Production of cigar-type tobaccos, which had exceeded the consumption for several years, was reduced by more than 30 percent. This curtailment resulted partly from the reaction of the growers to the unusually low prices that prevailed last year and partly from the acreage-reduction campaign of the Agricultural Adjustment Administration. Low prices caused a reduction in the output of many other crops, such as potatoes, flax, rye, and numerous truck crops, with favorable effects on their market position. On the other hand, the production of most of the major fruit crops slightly exceeded that of 1932, though remaining below the average. The demand increased, however, as a result of improvement in the economic situation generally, and the prices of most fruits ruled higher than in the previous season.

Inspected slaughter of hogs in the first half of 1933 was 3 percent greater than in 1932, and the average cost to packers declined. This cost was $3.72 per hundredweight, as compared with $3.74 during the first half of 1932. Slaughter in the second half of the year will probably exceed that of the second half of 1932, because the number of hogs 6 months old and over on June 1 showed a 13-percent increase, and there was an increase of 3 percent in the number of spring pigs saved. In the Corn Belt the increases amounted to 20 and 4 percent, respectively. The Administration's plan for buying sows bred to farrow in the fall and pigs under 100 pounds will not affect materially the amount of pork available for market during the remainder of the present year. It will improve the market, however, and will greatly reduce the prospective supply for the first half of 1934.

Cattle and calf slaughter likewise was larger this year than last. In the first half of 1933 the inspected slaughter of cattle exceeded that of the corresponding period in 1932 by nearly 6 percent. Yet the cost to packers was about 12 percent less. An increased number of cattle and unfavorable range and pasture conditions over much of the country caused increased fall marketings, and with outlets reduced, slaughter increased sharply. Calf slaughter during the year showed an increase, and calf prices ran below those of 1932. Sheep and lamb slaughter fell slightly below that of 1932. Prices of new crop lambs during the summer went above the level of the previous summer. The gross income to farmers from all livestock sales during the first half of 1933 was lower than during the same period in 1932. Income for the second half will be larger.

From March to August factory employment and pay rolls increased 22 and 39 percent, respectively, and such changes usually produce somewhat later an improved consumer demand for meats.

Income From Livestock and Poultry

Farm income from livestock products and from poultry and eggs in 1933 seems likely to be about the same as it was in 1932. Among these products, wool shows the greatest change. The season's clip was only about 1 percent greater than that of 1932, and there was a marked increase in wool textile activity. In consequence, the summer witnessed one of the sharpest advances in wool prices on record. In the most important marketing period for wool, April to July, inclusive, the farm price of wool averaged 18 cents, as compared with 8.5 cents in the corresponding period last year.

The production of milk on farms during the first half of 1933 was about the same as that of the first half of 1932, though the number of cows on farms was larger. High-priced feed and poor pasture conditions tended to restrict milk production. In the first half of the year the prices of whole milk and butter averaged below those of the first half of 1932, but July and August prices were above those of the same months last year. If the improvement continues to the end of the year, the gross income from dairy products should equal that of 1932.

There is an increased supply of poultry for market, but owing to heavy marketing of layers due to low prices of eggs and increased prices of feeds the supply of fresh eggs for the fall and winter will probably be less than that of last year. Up to the middle of September the prices of eggs ruled about the same as in the corresponding period of 1932. The prices of chickens ruled considerably lower. The total income in 1933 from poultry and eggs will probably be little less than that of the previous year.

The Price Trend

In February the general level of the prices of farm products, and also the exchange value or purchasing power of these goods in terms of other commodities, reached the lowest point on record, 49 percent of the pre-war average. The farmer had to bring two wagon loads of farm products to market in order to get in exchange the same quantity of other things that he could have obtained for one wagon load in the period 1910–14.

Some farmers increased their production and sales in an effort to maintain their standard of living. Nevertheless, the broad result was a sharp curtailment in purchases by farmers, who lived more nearly on what could be produced on the farm. All branches of business felt the effect. Reduced buying by farmers cut down industry, employment, and pay rolls. In this paralysis of trade between the country and the town, farmers saw no hope of escape from the necessity of selling their products below cost. They fed the cities, at the price of their own progressive ruin.

In March the new administration initiated the legislative program which produced the Agricultural Adjustment Act and the National Recovery Act. It dealt with the banking crisis and with monetary problems. Farm-commodity prices improved slightly in March, and substantially in April and May. In July there was sharp speculative advance followed by a reaction. From mid-March to mid-October, however, the net gain was 47 percent. There was not so great a gain—only 22 percent—in the exchange value of farm products from March to October, because prices paid by farmers advanced considerably. Some farmers, notably the beef-cattle men, lost purchasing power between March and October.

Among numerous factors that contributed to the advance in farm commodities were a reduction in the supply of some products, a general belief that economic conditions were improving, depreciation of the dollar in foreign exchange, increased business activity and employment, the replenishing of depleted stocks of goods, and increased buying by consumers in anticipation of higher prices. Reduction in supplies had much to do with the advance in the prices of grain and potatoes. The wheat and oat crops were the smallest in 40 years, and the corn crop was the next to the smallest since 1901. As already noted, however, the carry-over of these grains was above the average. A 14-percent reduction in the potato crop was more than offset to the growers by price gains. Market supplies of cattle, hogs, and butter were unusually large; nevertheless the prices of these products were fairly well maintained.

Depreciation of the Dollar

The depreciation of the dollar in foreign exchange affected mainly cotton, tobacco, and grain. It had less influence on most other farm products, and very little on those governed chiefly by local condition. On October 31 the dollar was worth only 64.4 cents in terms of French, Dutch, and Swiss gold moneys. During the summer speculation connected with the depreciation furnished additional, though temporary, stimulus to cotton and wheat prices. In a swift reaction these commodities fell sharply, but improved in September and October. Commodities sold mainly in the domestic market did not advance materially, except in cases (as for example potatoes) in which supplies were greatly reduced. Beef-cattle prices in October were about as low as they were in March, and in terms of gold as well as in purchasing power were decidedly lower than in March.

It is important to compare the above-mentioned domestic price movements with price movements in other currencies. From early April to the third week in July, wheat prices at Chicago in terms of the dollar advanced 84 percent and cotton prices at New York advanced 71 percent. In terms of sterling during the same period, wheat and cotton prices at Liverpool advanced only 22 percent. Comparing prices for the fourth week in October with the level of prices during the first half of April, wheat prices at Chicago in dollars had advanced 48 percent whereas wheat prices at Liverpool in sterling were 3 percent lower; in terms of gold wheat prices at Liverpool were 11 percent lower in the fourth week of October than in the period April 1 to April 15. Cotton prices for the fourth week of October compared with the level of prices for the first half of April were 44 percent higher at New York in terms of dollars and 45 percent higher at Liverpool in terms of dollars, but only 6 percent higher in sterling at Liverpool and 3 percent lower at Liverpool in terms of gold.

Broader effects on prices seemed likely to result from the gold-purchase policy adopted by the Government in October. This policy, by gradually increasing the price of gold, indicates an intention eventually to cut the quantity of gold in the dollar. It may not have any great effect for some time on livestock and dairy prices, which depend much more on pay rolls in this country than on foreign demand. Eventually, however, most of our raw-material prices should rise to the extent to which the gold in the dollar is reduced. It may take certain products a year, or even several years, fully to reflect the change. It is well to bear in mind the probability that the favorable influence of our monetary policy on the prices of cotton and wheat may not continue if foreign countries reduce the weight of gold behind their currencies as rapidly as we do. Currency policies may stimulate our exports temporarily but should not lead us to think that a world-wide demand exists for our surpluses, unless sufficient changes have been made in our tariffs to build up sufficiently increased foreign purchasing power.

Varied Response to Recovery Factors

As usually happens when the general price level is changing, different farm products varied greatly in their response to recovery factors. The average of prices received by farmers in October was 43 percent above the low point of the depression. At one extreme, wool showed a gain of 237 percent; at the other, beef cattle rose only 7 percent. Corn in mid-October was 106 percent above the low point touched on December 15, 1932, whereas hogs showed a gain of only 56 percent. Tobacco prices advanced over the relatively high prices of the previous year which were the result of a short crop. The exchange value of farm products in mid-October was 60 percent of the pre-war average, compared with 71 percent at the season's high point in mid-July. This decline from July to October reflected both a decrease in prices received by farmers and a continued increase in prices paid by farmers for commodities bought.

It should be noted, in connection with the advance in the prices of the things that farmers buy, that this advance included part of

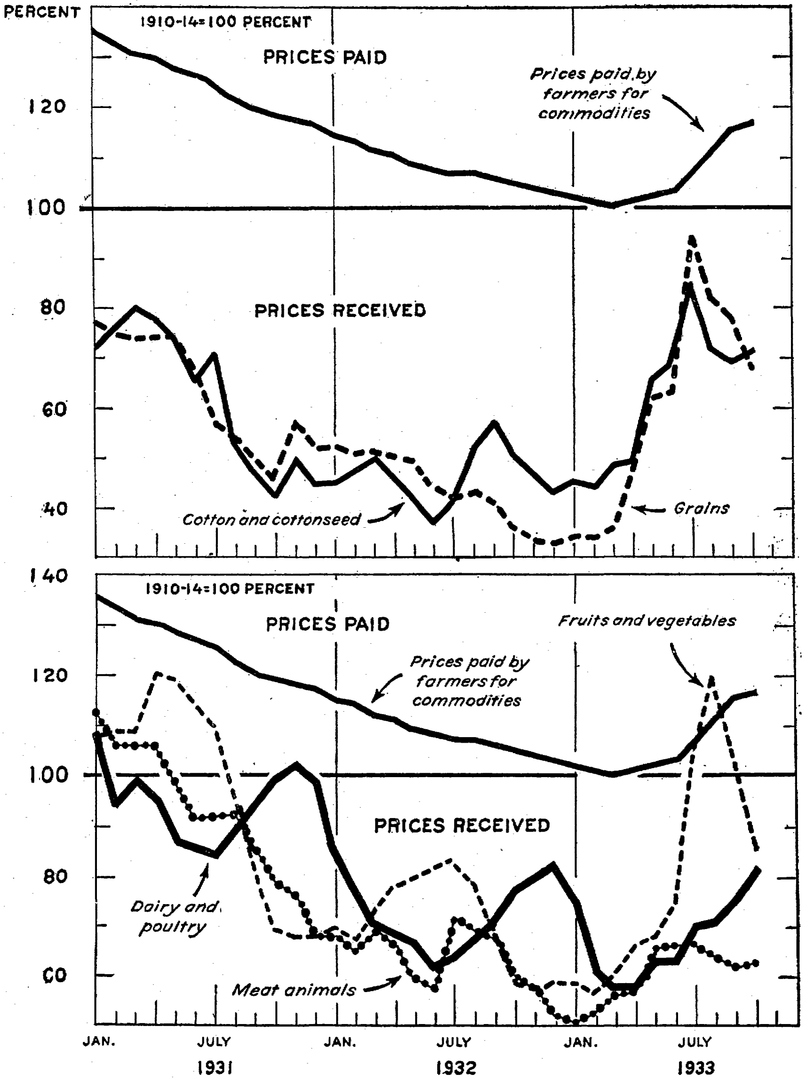

FIGURE 2.—Indexes of prices received and paid by farmers. The recovery efforts since March have brought about a sharp advance in certain farm products, particularly grains and cotton. The prices of these commodities had previously fallen to lower levels than the prices of most other farm products. They responded promptly in 1933 to the administration's monetary policy. Commodities more nearly on a domestic basis, such as meat animals, dairy products, and poultry products, did not rise equally as a result of monetary changes, but showed some advance. A small crop of potatoes caused a great advance in potato prices and raised the average for the fruits and vegetables group. The advance in prices received by farmers was partly offset by a 17-percent advance in prices paid by them. But returns to cotton growers and wheat growers were augmented by benefit payments for acreage reductions. These payments meant practically parity returns to the growers. Benefits to farmers during the 5 months from August to December were equivalent to a 20-percent increase over their cash farm income for the same period last year.

the gain in the prices of farm commodities. Rising grain prices during the summer obliged farmers to pay more for feed and for such foods as they purchase. Building materials, equipment and supplies, fertilizer, machinery, and other things used in farm production increased in price also; these things, however, include comparatively little raw material from the farm. In mid-October the index of the prices paid by farmers for commodities used in family maintenance stood at 119, as compared with 99 in March. The separate index for the prices of commodities used in farm production was also 113 in October, as compared with 101 in March.

FARM REAL ESTATE VALUES

The total value of farm real estate in the United States fell from \$37,027,000,000 as of March 1932, to \$30,515,000,000 as of March 1933. These values compare with \$47,880,000,000 in 1930 and \$66,316,000,000 in 1920.

The acre value of farm real estate declined in nearly every region. The average for the United States, as of March 1933, was 27 percent below pre-war (1912–14), as compared with 11 percent below for the previous year. The peak of values, 70 percent above pre-war, was reached in 1920.

Present low levels are the result of two fairly distinct movements. The first lasted from 1920 to 1930. In that period, during which the effects of the speculative wave in the war and post-war boom were largely liquidated, the Department's index of land values dropped from 170 to 115, a decline of 32 percent.

During the second broad movement, which became clearly evident in 1930, the index declined from 115 to 73 in 1933, a decline of nearly 37 percent. This drop reflected the drastic decline in the price level during the depression.

The relative decline in farm real-estate values has been greater during the past 3 years than during the whole decade following 1920.

In only 7 States, 4 of them in New England, was the index of land values higher in March 1933 than in 1912–14; in some States it was less than 60 percent of the pre-war index.

In the Middle Atlantic States values averaged 82 percent of pre-war, in the East North Central States 62 percent, and in the West North Central States 64 percent. The index for the South Atlantic States was 80 percent of pre-war, for the East South Central States 79 percent, and for the West South Central 82 percent. Values in the Mountain States averaged 69 percent of pre-war and in the Pacific States 96 percent. The New England States, where the index was 105, were the only group in which average values were higher than in 1912–14.

Forced sales of farms increased as a result of delinquency on taxes and on debt service. For the year ended March 15, 1933, approximately 15.3 farms per 1,000 were sold for taxes. Approximately 38.8 per 1,000 were involved in transfers in settlement of debt. Corresponding rates for the previous year were 13.3 and 28.4 farms per 1,000, respectively.

These transfers of title are not necessarily final in every case, since periods of redemption are frequently provided by State statutes.

FARM DEBTS

One of the worst aspects of the farm problem is the farm-debt situation.

In 1928 farm-mortgage indebtedness in the United States amounted to nearly $9,500,000,000, and short-term indebtedness, represented chiefly by loans from local banks, ran to about $3,000,000,000 more. Farmers owed large additional sums to livestock-loan companies, farm-implement companies, and merchants. Total farm indebtedness undoubtedly exceeded $14,000,000,000. On the real estate indebtedness, the annual interest charge averaged about 6 percent. On the short-term bank indebtedness the interest charge averaged probably 7.5 percent. On merchant credit the interest amounted to 10 or more percent. This Department estimated the annual carrying charge for 1928 at $900,000,000.

By 1932 the mortgage indebtedness had been reduced to about $8,500,000,000, and the total of other forms of farm indebtedness had declined also. Ordinarily, a reduction of indebtedness is a favorable sign, an indication that debtors are improving their financial position. Sometimes, however, it is an unfavorable sign. This is, in large part, the case with the decline of farm indebtedness in this country since 1928. It is largely a result, not of normal liquidation, but of foreclosures, bankruptcies, and forced sales, and of the inability of local banks and other credit agencies to lend. Forced sales in 1932 constituted 37 percent of all transfers, as compared with 27 percent in 1928. Moreover, the reduced carrying charge represents this year a much greater proportion of the gross farm income than did the larger payments in 1928. Mortgage carrying charges alone will take this year something like 13 percent of the gross farm income.

In 1932 for the country as a whole nearly 16 percent of all mortgaged farms were encumbered for more than 75 percent of their value. The mortgage debt represented 25 percent of the value of all farm land and buildings, and about 40 percent of the value of all mortgaged farms. It was two and a half times greater than in 1910. Even in 1929, before the depression, farmers had difficulty in meeting their interest charges and in retiring maturing loans. Even then they were not getting a fair exchange value for their products. When farm prices dropped in the depression to 50 percent below pre-war, payment became impossible for great numbers of farmers, especially those carrying heavy indebtedness.

Difficulty in Getting Renewals

Their plight, because of delinquency and lower land values, was intensified by an increasing difficulty in renewing mortgages at their original amounts. About 12 percent of the farm-mortgage indebtedness normally comes due each year. Delinquent interest and principal payments have automatically increased the number of loans for which payment has been called. Reduction of the total debt through foreclosures means that farmers are being forced to the wall. The need, in existing circumstances more than ever before, is for refinancing of mortgage debts pending a further improvement of farm income. Mortgage interest is in arrears on thousands of farms that have not yet been brought under the hammer.

The depression disrupted short-term credit facilities as badly as it did mortgage facilities. Country bank failures multiplied. After the general bank suspension in 1933, more than 3,000 banks, mostly in rural areas, failed to reopen or reopened only for restricted withdrawals. Deposits dropped in the banks that did not fail. In 20 leading agricultural States, the 4-year period ended in February last saw a decline of more than 50 percent in the net demand deposits of member banks in the Federal Reserve System in cities and towns of less than 15,000 population.

This summer there was a partial recovery, but the level of deposits still remained 14 percent lower than in the midsummer of 1932. Low bank deposits mean low bank lending power. This may reduce farm production, but the method is bad. Many farmers cannot adequately carry on their farming operations when production credit fails.

Farm credit difficulties, though especially acute since 1929, did not begin then. Credit facilities have been inadequate in many rural areas for years. The Federal Government has attempted frequently since the war to improve the situation through emergency measures and new permanent agencies. In 1921 it enabled the War Finance Corporation to advance funds to livestock-loan companies and to banks in agricultural communities. In 1923 it established the Federal Intermediate Credit Banks. In 1929 it financed cooperative marketing organizations through the Federal Farm Board. In nine different years it provided money for seed loans. It authorized the Secretary of Agriculture to assist in capitalizing agricultural-credit corporations and livestock-loan companies and authorized the Reconstruction Finance Corporation through the regional agricultural-credit corporations to make direct loans to farmers on the security of livestock and other personal property including growing crops.

These various activities did not suffice, however, to meet the critical situation that developed as the depression continued. Accordingly Congress took additional action, along the lines previously described in connection with the passage of the Agricultural Adjustment Act.

It is not within the scope of this report to discuss the administrative side of the new Federal credit policy, because that is the responsibility of the Federal Farm Credit Administration. That body coordinates the credit functions of the former Federal Farm Board and also of the Federal Farm Loan Board, which has charge of the Federal land banks and the intermediate credit banks. Also it supervises the administration of the regional credit corporations and the various emergency-loan funds previously administered by the Department of Agriculture. Formerly these various Federal credit functions in many cases overlapped, and farmers often did not know where to apply for the particular kind of credit they needed.

By strengthening the capital structure of the Federal land banks and furnishing substantial sums for mortgage loans to farmers, Congress gave private lending agencies an opportunity to transfer loans which they could not hold, and thus to avoid foreclosing on the farm borrowers. It relieved farmers materially by authorizing the Federal Farm Credit Administration to reduce the interest rate on Federal land bank bonds, and temporarily to waive payments on the principal. In addition it made direct loans available to farmers in districts where local farm-loan associations are not in a position to accept loan applications.

It will take time to realize the potentialities of the new legislation in tangible benefits to the agricultural industry, but the ultimate showing should be very substantial. Already the foreclosure process has dropped off considerably.

New Credit Agencies

Under the 1933 credit legislation, the Farm Credit Administration may set up in each Federal bank city two new credit agencies, a production credit corporation and a bank for cooperatives. The production credit corporation may purchase stock in local credit associations which function as discounting agencies with the Federal intermediate credit banks. Borrowers through these associations will be required to buy stock in them. The cooperative bank may make loans to farmers' cooperative associations organized not only for the sale of farm products but also for the purchase of farm supplies.

Besides the 12 national cooperative banks, the Farm Credit Administration has set up in Washington, D.C., a central bank for cooperatives. This institution will make loans to the major cooperative associations about in the same manner as did the Federal Farm Board.

Banking Difficulties

More than a decade of serious banking difficulties in agricultural communities has made banking reform a problem of great importance to farmers. More than 10,000 banks have failed in the United States since 1920. In mid-August this year, about 2,800 banks were restricting withdrawals. Most of these banks were in agricultural communities. Such figures indicate the difficulties that farmers have had with their banks. The loss to both depositors and borrowers arising from bank receiverships has been tremendous, and the lending power of open banks has been drastically curtailed.

The trouble in country banks arose mainly from withdrawals by depositors and from a frozen condition of the loans and investments. These conditions, present as troublesome factors for many years, were greatly intensified by the depression. Growing disparities between income and necessary expenditures in agricultural areas caused deposit declines, which thousands of country banks, because of their frozen condition, could not meet. The depression rendered loans less collectible and depreciated the value of bonds to the point where, in many cases, banks dared not sell their bonds. Caught between these two millstones, thousands of country banks were forced to close or to restrict withdrawals. This created a condition of public distrust which further aggravated the situation.

Difficulties arising from the depression, however, would have caused far less widespread damage had not the banking situation already been weak. Studies participated in by the Bureau of Agricultural Economics show that before the depression set in numerous country banks had large holdings of poor loans and speculative bonds, and that most country banks were deeply involved in financing the long-term needs of farmers and businesses in their communities. They were able to do this because their time and savings deposits, added to their current deposits, gave them a lending power far in excess of the amount that farmers and local industries needed for current operating purposes.

Financing of this character does not usually reveal its weakness until depositors begin reducing their accounts. Then it becomes apparent that loans for long-term purposes cannot be collected except on a very small scale. If, combined with local withdrawals, there is a general depression of values which reduces the collectibility of loans and which impairs the values of bonds, banks often find it impossible to meet the demands of depositors.

Loans for the current operating purposes of farmers and business men can be discounted at Federal Reserve banks, even if they are not immediately collectible; hence these loans are seldom responsible for the failure of banks. But there is virtually no outlet for most of the paper representing advances for the long-term purposes of farmers and local business men. Although many banks have successfully weathered the depression in spite of their large holdings of slow loans and depreciated bonds, few have been able to do so when local unrest has caused deposit withdrawals of very large extent.

Means of Strengthening Country Banks

A means of strengthening country banks is suggested by the fact that banks become deeply involved in long-term financing mainly because their lending power greatly exceeds the volume of credit that farmers and local business can absorb in liquid operating loans. This, in most banks, results from the large volume of their time and savings deposits. Were these accounts removed from commercial banks, such banks would be able to keep in much more liquid condition. Segregated in savings banks or loan companies the time and savings deposits would be a source of little difficulty, for these institutions could easily call a halt upon runs by depositors. The bank which handles both kinds of accounts cannot do this, because an attempt to restrict one type of deposit actually creates runs by other types of depositors.

Segregating the time and savings deposits in the manner indicated might seem to work an injustice upon the depositors, particularly if restrictions were placed upon withdrawals. It is obvious, however, that no considerable amount of time and savings deposits can be paid in a short period of time by any type of banking system. The funds representing these deposits are invested in the fixed capital of agriculture and industry, and cannot be extracted at short notice. Taking such accounts out of commercial banks would merely make it impossible for time and savings depositors to force a general banking collapse by attempting to withdraw their money.

FARM TAXES

Farm taxes per acre in 1932 were 89 percent higher than in 1913. This Department has completed a study to determine changes in farm real-estate taxes per acre and in relation to value for each of the 48 States. By 1929 the taxes per acre had risen on an average 141 percent above the pre-war year 1913. In every geographic division they had more than doubled.

Since 1929 acute distress among farm taxpayers has forced reductions in tax rates, in assessments, or in both, in all but three States. The average tax reductions, though substantial, have been very unevenly distributed among taxpayers. Many have had no reduction from the 1929 level. Indeed, in three States the averages have not decreased.

In 1913 taxes amounted to an average of 55 cents on each $100 of farm valuation. By 1929 the figure had increased to $1.19. In the second post-war depression land values fell more rapidly than did taxes, with the result that in 1932 farm taxes amounted to $1.50 per $100 of farm valuation, or nearly three times as much as in 1913.

Farms in ever-increasing numbers became tax delinquent. A great part of the delinquency followed the severe drop in farm prices and income in 1929 and later. A significant increase was evident, however, before 1929.

The tax burden on farmers results primarily from the undue reliance of State and local governments on the general property tax, from the discriminatory weight of this tax upon real estate, and from the relatively great amount of real estate required in a farming business. The so-called "general-property tax" is little more than a real-estate tax and falls with special severity on farm owners. Less reliance should be placed on the general-property tax as a source of State and local revenue, and the efficiency of rural government should be improved through a revision and redistribution of functions, and through a reorganization or consolidation of governmental units and of administrative machinery.

EXTENSION AND INFORMATION WORK

The extension services of the Department and the various States have been the spearhead of the educational effort to acquaint farmers with the purposes and opportunities of the various programs undertaken under the Agricultural Adjustment Act.

With experienced local farm agents in 2,200 counties, and other agencies at work in 700 other counties, the cooperative extension service was well organized to assume the advisory and informational responsibility. Special temporary agents were assigned to many counties with high agricultural production, to aid in the emergency work. Federal and State specialists and administrative staffs threw their efforts, backed by years of experience, into supporting the field agents in interpreting and instructing in the national programs of agricultural adjustment.

First of all, farmers were given the fullest possible information on current economic situations in agriculture. The disastrous results of great surpluses of wheat, cotton, hogs, and other basic agricultural products were outlined. Farmers gained a new understanding of the "shadow of excess." They caught the significance of closed export markets. They realized the vital need of adjusting production with effective demand.

Then came the first of the basic production reduction programs—the emergency plan which took more than 4 million bales of cotton from the potential 1933 crop. Supported by more than 20,000 volunteer workers, the extension staff in the South led the campaign in which more than a million cotton growers signed contracts to reduce their 1933 crop acreage. Fighting against time from the start, the entire campaign was pushed through in 6 weeks.

Working simultaneously in more than 30 States, the cooperative extension forces carried out the educational and organization features of the national wheat adjustment campaign, launched by the Agricultural Adjustment Administration as a 2-year production-control program. Wheat growers signed voluntary applications bringing more than 50 million acres of wheat under the agreements, which call for a 15-percent reduction in 1934 acreage. Extension representatives helped hundreds of local wheat production-control associations, composed of the participating farmers themselves, to organize. These associations will carry out much of the local administration of the wheat plan.

In production-control campaigns for various types of tobacco in different districts, and in carrying out the emergency hog-marketing plan, the extension staffs performed field activities. In the more permanent cotton, dairy, and corn-hog adjustment programs, as well as in many more localized activities in the general campaign to restore the pre-war purchasing power of farm products, the widespread cooperative extension service has been in position to carry out the needed educational and organization work.

Home-demonstration agents, located in more than two thirds of the counties of the United States, have cooperated with the consumers' counsel of the Agricultural Adjustment Administration in helping the home makers of the country to meet changing economic conditions. They have done a great deal of work with local relief agencies, assisting with meal planning and dietary recommendations, encouraging home gardening, conducting food-canning demonstrations, and helping plan emergency budgets. The home-demonstration agents have also directed activities which have helped to keep families off the relief rolls. They have supported the live-at-home program, which has made it possible for many families to be largely self-supporting.

Even in the midst of efforts to solve great economic and social problems, the interest of the entire country, both rural and urban, in the 4-H clubs has been sustained. 4-H club membership and work have kept up their excellent records. Young people have, perhaps, been most keenly interested in ways to assist in the family's problems and in projects which promised some profit.

As details of commodity adjustment efforts were more sharply defined and the various phases were woven into a strong national agricultural plan, extension agents adapted their programs to carry on both the vital adjustment work and their regular responsibilities in helping to solve the ever-present problems that face the American farm family—reduction of expensive loss and waste in farm operations, better utilization of labor and facilities, economical improvements in quality of products, provision of satisfactory standards of living, and maintenance of the morale of the family.

Publications, Press, and Radio

Supplementing the extension efforts on the adjustment program, the information staff of the Department carried out the largest single, intensive effort it has ever made to unify the thinking and action of farmers. By issuing publications, by cooperating with the press of the country, and by broadcasting daily over 300 radio stations, the Department acquainted farmers with facts about current supply-and-demand maladjustments, prices, and possible remedies, and about the basic principles and powers of the Agricultural Adjustment Act. The purpose was to give farmers facts on which they could intelligently shape a program designed to improve their economic conditions and, acting in unison, use the centralizing power of the Federal Government to make that program work.

Machinery for handling information was reorganized. Previously the press work of the Department and of the State extension services was carried on more or less independently. During the early part of May arrangements were made to clear some of the Department's press material through the agricultural extension editors in the 48 States. Seventeen State extension services were already cooperating with the Department in correlating agricultural radio programs; this number was quickly increased to 41, thus providing an effective Federal-State channel for the daily distribution of information. Finally, a special information unit was established in the Agricultural Adjustment Administration to give the public each day accurate accounts covering actions taken and policies decided upon.

In previous years the principal function of the information staff was to interpret and place in the hands of those who could apply them, the facts and recommendations arising from the scientific, economic, regulatory, and conservation work of the Department. The new program does not supplant the other work; in fact, technical knowledge has become of increased importance to farmers and others. But greatest emphasis is now placed on economic and social adjustments which have a single purpose—increasing the buying power of farm commodities.

PLANT INVESTIGATIONS

Sugar Beets

Plant investigations developed strains of sugar beets resistant to leaf spot. Hybrids produced by intercrossing surpassed the commercial strains in tonnage and sucrose percentage. The introduction of these leaf-spot-resistant hybrids is now definitely forecast. For large areas in the Middle West they will provide a measure of relief against a disease which has in many seasons made crop production and factory operation unprofitable.

Curly-top-resistant variety U.S. No. 1, a recent development, proved superior to ordinary sorts in seasons when the curly-top disease was important and compared favorably with the best commercial varieties in seasons when curly top was unimportant. It produces a slightly lower tonnage but equals the commercial strains in quality. It will be distributed to growers for testing in 1934.

New Egyptian-Type Cotton

Comparative field tests under diverse conditions of climate and soil indicated that a new hybrid obtained by crossing Pima, the only variety of Egyptian-type cotton grown commercially in the United States, and Sakel, the most valuable of the varieties grown in Egypt, may be depended on to outyield Pima 20 percent. Spinning tests are being conducted to determine the value of this new hybrid in comparison with Sakel.

Downy Mildew of Tobacco

Laboratory studies indicated that although spore germination and plant infection can occur over a wide range of temperatures, spore production takes place only with night temperatures between 50° and 60° F. Maintaining night temperatures at 70° gives effective control. In most localities the critical period over which such temperature control is needed probably does not exceed 3 weeks.

Barley—Oats—Wheat—Flax—Corn

Analysis of 5 years' yield from the entire United States and Canada shows that Trebi barley, introduced by the Department, has a remarkable range of adaptation. It was the highest yielder at 31 stations, no other variety leading at more than 4 places. It is not considered satisfactory for malting purposes, but is a high-grade feeding barley.

Bond, Alber, Berger, and Victoria oats recently introduced by the Department from Australia and South America are proving highly resistant to crown rust which seriously limits the production of winter oats in the South. The first three, moreover, show indications of being adapted to different sections of the South. Some very promising hybrids involving these varieties are being developed.

A new wheat variety, Yogo, developed in cooperation with the Montana Agricultural Experiment Station, is unusually winter hardy, resistant to bunt, and well adapted to, and high-yielding in, the northern winter-wheat section of the Great Plains.

Browning (*Polyspora lini*), a disease new to the principal seed-flax areas of the United States, was found in North Dakota in 1932. Bison, highly resistant to flax wilt, is very susceptible to the browning disease. Other commercial varieties appear to be quite resistant to it. Periods of low temperature during the early and late growing season seem to favor the spread of the disease.

Seed of parent lines of four corn hybrids, developed in cooperation with the Iowa Agricultural Experiment Station, has been placed with farmers for production on a commercial scale. In 1932 these four hybrids produced yields 14 percent greater than did the average of open-pollinated varieties grown in the Iowa corn yield test. They are markedly more resistant to lodging than the open-pollinated corn, and otherwise more valuable.

Crotalaria—Lespedeza

The use of crotalarias for soil improvement, especially in orchards of tung-oil trees and in citrus groves on sandy soils, has greatly increased because these plants are not infected by the root-knot nematode. This is of the greatest importance for any soil-improving crop for sandy land in the South as far north as the peach area of North Carolina. At least one species of crotalaria has been found useful for soil improvement as far north as the Ohio River, wherever the type of farming allows the use of a summer soil-improving crop. Other species have proved to be good forage crops.

Korean lespedeza, introduced by the Department in 1921, has now spread from the Atlantic coast to eastern Kansas, and in Missouri has reached such importance that new rotations are being built around it.

In cooperation with the Virginia Agricultural Experiment Station, the Department developed a number of stocks of Virginia-type peanuts grading 85 percent or more of extra-large size. The stocks are also higher yielders than ordinary sorts. Since a substantial premium is usually paid for large-sized peanuts, these new stocks open the way to materially increased profits for growers.

The Department bred a new early variety of the Refugee-type bean which is decidedly resistant to the mosaic disease and which is attracting the attention of canners and seedsmen. It is about 2 weeks earlier than the Refugee and shows much promise for canning. Its earliness is important because the present commercial strains are so late that in many of the important bean seed-growing districts frost occurs before the seed is mature.

Some of the Persian walnut orchards of California were made to produce a profit for the first time the past year through a demonstration of the Department's discovery that artificial cross-pollination is sometimes necessary, not because of self-incompatibility but because the staminate and pistillate blossoms of the individual varieties do not reach maturity simultaneously in some cases. The cost of artificial pollination is low, about $3 an acre.

Handling and Transportation of Perishables

Investigations in the handling and transportation of fruits and vegetables showed that the quality of peas, baby lima beans, and sweet corn, which deteriorate rapidly after harvesting, can be maintained for several days by storage in carbon dioxide gas; and that soft scald and soggy break-down of apples may be prevented by treatments with carbon dioxide for 2 or 3 days prior to cold storage at 32° F.

The use of sodium acid sulphite mixed with the sawdust when grapes are packed has been found to prevent mold in storage of California table grapes. It preserves the grapes in sound and almost fresh condition for upwards of 3 months at 32° F. This chemical may be placed in the pad or cushion at the bottom of the package. Sodium metabisulphite may also be used.

Investigators worked out a new and more effective method of protecting pears from freezing in transit, which costs from $10 to $12 less per car than the old method. The latent heat of fusion of water can be employed to protect the pears from freezing. Sawdust saturated with water is packed under the lower portion of the load, and the heat liberated when this water is frozen in transit protects the fruit from freezing 2 days longer than does the use of dry straw or building paper.

Kieffer pears, the investigations showed, may be ripened to acceptable quality for dessert or canning purposes at a temperature of 60° to 65° F. This discovery is likely to prove of much importance to growers and to the eastern packing industry. The importance of proper ripening temperature for the Kieffer pear does not seem to have been realized heretofore.

Frozen-Pack Investigations

Frozen-pack investigations demonstrated that for fruit very rapid freezing is not only unnecessary but is sometimes detrimental to the quality of the product. With fruits packed in small retail containers, the best quality in most cases, as well as the greatest economy in cost, is attained by freezing fruits at a temperature of 10° to 15° F. When the fruit is packed in barrels, a temperature of about zero appears desirable on account of the larger mass and the necessity of its being completely frozen before deterioration sets in. Expensive special equipment for very rapid freezing is not essential with this method of preservation. The facilities available in practically every cold-storage plant can be satisfactorily utilized. The limitations of this method are to be found in problems of marketing rather than in the use of any particular method of freezing. An airtight container is essential for the satisfactory preservation of certain frozen-pack fruits.

Dutch Elm Disease

A serious outbreak of the Dutch elm disease was discovered near Newark, N.J., involving more than 200 trees scattered over some 600 square miles. Other infections were found on Staten Island and Long Island. In Ohio in 1930 and 1931 this disease was found on 8 trees which were immediately destroyed, and but 1 additional tree affected with the disease has been found during the past year in that State. A control program in cooperation with the State of New Jersey is being undertaken. As rapidly as possible this work will be extended to other States in which infection is found, in the hope of saving this important park and shade tree.

Stain in Pine and Hardwood Lumber

During the past 2 years over 200 pine and hardwood mills in the United States, Canada, Mexico, and the Philippine Islands have adopted the inexpensive organic-mercury treatment developed by the Department for the control of stain and mold in pine and hardwood lumber. Recent studies have added certain new chlorinated-phenol treatments which, though costing a little more, appear still more effective on all southern commercial species of pine.

ANIMAL-INDUSTRY WORK

Much of the possible profit from hog raising in the South has been turned into loss by the kidney worm, the most widespread and destructive swine pest in this region. After many years of research on farms and at packing plants, the Department this year found a simple, practical, and cheap method of avoiding this loss which at the same time lessens the danger of spread of this pest to other parts of the country.

The method consists essentially in preventing the infection of young pigs, and in this respect is much like the original swine-sanitation system, which was also devised by the Department and which is now used widely by hog producers in the Middle West to control the roundworm. This new sanitation plan for southern farms depends on keeping the eggs and immature worms passed in the urine of the infected sows off the grass and other forage where they would be picked up by the young pigs in feeding.

Observation and a study of infestation of the soil have shown that most of the infectious material is passed in the area around the sleeping quarters and close to the fences. The eggs and immature worms are soon killed by sunlight, heat, and drying. They cannot last long in the open unless they fall in grass or other plants. The plan, which has given good results in many farm tests, requires clearing away all vegetation, including grass and weeds, in a strip 3 to 5 feet wide along the fence on three sides of the pasture lot, and a strip about 30 feet wide at the end where the houses and other equipment are placed. These areas must be kept cleared while the pasture is in use.

Some few eggs and worms will be spread on the green part of the lot, but experience has shown that a very large percentage will be passed by the sows on the bare ground just outside the sleeping quarters, near the feeders, or along the fence. The actual results reported prove the point. In considering these results, it should be remembered that throughout a large part of the South at least 90 percent of the hogs are infested with this kidney parasite.

Near Moultrie, Ga., the Department investigators raised 125 pigs on pasture lots surrounded by these cleared sanitation strips. Only 4 percent of the pigs had worms in the kidney area, and only 15 percent of the livers were condemned at slaughter as unfit for human food, which means that 85 percent were not infected. Packing plants in this region have regularly lost about 95 percent of the livers as unfit, as well as parts of the loin, and frequently whole carcasses, all as a result of this parasite.

As a check on the lot of 125 pigs raised under the new sanitation-strip plan, 291 were raised under the original sanitation system used in the Corn Belt to control roundworms. Under this plan in the South the sows, before farrowing, are placed on a clean pasture and kept there with their pigs. The pastures in this system have no bare strips around the borders. A great reduction in infestation was the result, but it was not satisfactory. Of the 291 pigs raised this way and marketed, 23 percent had infected kidneys and 68 percent of the livers were condemned.

In addition, 28 pigs were raised in pasture lots with no sanitation measures before or during the pasture period. Thirty-two percent of them had infected kidneys, and 97.5 percent of the livers were condemned.

Bovine Tuberculosis

In the extensive Federal-State effort to eradicate bovine tuberculosis, three more States—Nevada, New Hampshire, and Utah—attained practical freedom from this disease during the last year. This brought the total number of such States to 11. Added progress in other States has increased the total number of counties accredited by the Department as free of the disease. On July 1, 1933, there were 1,626 counties, or 53 percent of all the counties in the United States, so recognized. During the fiscal year tuberculin tests were applied to 13,073,894 cattle and 255,096 were condemned. Funds made available for tuberculosis eradication by the various States and counties amounted to about $10,000,000 for the year.

In Iowa opponents of tuberculosis eradication attempted to abolish all legislation having anything to do with carrying on this activity. Public sentiment was aroused and the attempt was defeated in the legislature. The work is now going on in a satisfactory manner in that State.

Eradication of Parasites

In the campaign to eradicate the cattle tick, the carrier of tick fever, the Department continued to cooperate with State and county officials and cattle owners in the affected Southern States. During the year Federal and State agents supervised 25,328,261 inspections or dippings of cattle, and 2,368,581 inspections or dippings of horses and mules. The following areas were released from Federal quarantine: 7 counties and part of 1 county in Arkansas, thereby freeing that whole State from quarantine; 6 counties and parts of 3 counties in Florida; and 10 counties and part of 1 county in Texas; the aggregate area released being 20,290 square miles. At the end of the year the Federal quarantine was limited to parts of three States—Louisiana, Florida, and Texas.

The Department in May 1933 removed the last of the Federal quarantines on sheep scabies. These quarantines at one time covered 2 million square miles in the Western States. The quarantines originally included North Dakota, South Dakota, Nebraska, Kansas, Texas, and all States west to the Pacific Ocean. Eleven of the States are now entirely free from sheep scabies. In most of the others in the range country there are only occasional cases, principally in feed lots where sheep come in from infected districts. The final eradication of isolated cases should not be difficult.

Investigations on the life cycle of horse bots showed the best time to treat horses and mules for the removal of these parasites. Essential facts with reference to poultry parasites, requisite to the formulation of control measures, were ascertained. Experiments developed a safe and satisfactory treatment for the removal of poultry ascarids.

Valuable New Disinfectant

As a further means of safeguarding livestock production the Department studied the chemical structure and effectiveness of various dips and disinfectants. The knowledge gained made it possible to standardize these products and make them more effective. Such studies recently led to the discovery that sodium orthophenylphenate is highly effective in destroying tubercle bacilli. The new germicide, which is now being made commercially, is especially suitable for use around dairy and farm buildings, since, unlike many other disinfectants, it has only a slight odor. It is readily soluble in water and is not severely poisonous to livestock.

Advances in Animal Husbandry

In animal-husbandry investigations the Department tested various promising means of producing livestock and their products more economically, while maintaining or improving their quality. Grazing investigations demonstrated that, while livestock do not produce so much from an acre of pasture as from an acre of harvested crops, pasture is the cheaper feed and returns the greater profit. Moreover, grazing conserves soil fertility better than when crops are harvested for sale or for livestock feeding. Other studies showed the high nutritive value of pasturage and the acceptable quality of meat produced wholly from grass-fed animals or those fed a combination of grass and grain. A much greater use of grass in the Nation's program of livestock production seems desirable.

Record-of-performance studies with cattle and with swine disclosed wide variations among animals of similar breeding as to feed utilization and quality of carcass and meat produced. Certain sires appear to be capable of transmitting a high degree of excellence both in feeding efficiency and quality of meat.

The Department assisted producers in improving methods of home butchering and the care of meat. The meat program now includes 45 States in which county, State, and Federal workers assist farmers in home curing large quantities of pork, beef, and lamb. In Texas home butchering of hogs has increased 50 percent during the last 2 years. It is now practiced on more than 75 percent of the half million farms of the State. In Georgia 15,000,000 pounds of pork are now cured under refrigeration by farmers, much of it in cooperative, farmer-owned storage plants.

New Basis for Poultry Improvement

Studies on the inheritance of egg production, which is the key to improvement of poultry flocks, yielded highly valuable results. The number of eggs laid by a bird does not indicate the ability of that bird to transmit high production to its female offspring. Nor does the egg production of the sire's dam serve as a dependable index of the breeding ability of the sire. The most reliable means that is readily available of judging the value of a sire for a laying flock is the average egg production of his daughters.

The investigations disproved some common assumptions on which poultrymen have been culling their flocks and furnished a more reliable system. Neither the shape of a hen's body nor the shape of her head bears any relation to her egg production. A hen's ability to lay depends on her breeding rather than on any so-called "egg-laying type." Investigators measured the live birds, the dressed carcasses, and the bones of about 400 hens whose daily egg production had been determined by trap nesting. They could find no relationship between egg production or egg size and the shape of the hen's body. Similarly, the shape of the head, often regarded as an indicator of laying capacity, was not a safe guide. Head and skull measurements revealed no factor associated with high capacity for egg production.

DAIRY RESEARCH

Experiments to determine the relative production of dairy cows on a ration consisting of roughages alone as compared with a full grain ration continue to show that cows, when receiving a good quality of hay, are capable of fairly high levels of production at economical costs, without the addition of other feeds to the ration. Twelve cows at the dairy field stations have now completed yearly records, during which time they received no feed but alfalfa hay. They averaged 11,399 pounds of milk and 405 pounds of butterfat on a mature basis. These same cows have made comparable records on a full grain ration, averaging 17,769 pounds of milk and 602 pounds of butterfat. Thus the rather extreme ration of alfalfa hay alone produced 64 percent as much milk and 67 percent as much butterfat as did the full grain ration. These results, together with data showing the comparative cost of producing nutrients in the form of grains and hays, indicate that the farmer who grows all the feed for his livestock will make more money if he grows and feeds all of the ration in the form of roughage, even with the lower production from his cows. This appears to be a practical method of slowing up the production of dairy products and at the same time increasing the profits of the producer.

Dairy investigators studying the factors associated with loss of natural green color in hay found that artificially dried hay having a low moisture content lost but little color when stored in the absence of light and air, and that there was no excessive loss of color when the hay was exposed for 8 months in either diffused sunlight or air or both. The naturally cured hays possessed less color and more moisture and when stored in the absence of air at room temperature sustained a marked loss in color. Samples of both the artificially cured and the field-cured hays stored in a refrigerator for 8 months retained their color exceptionally well.

Feeding experiments at two field stations showed a slower percentage decline in milk yield when cows were receiving a ration composed entirely of grass silage than when they were receiving a ration consisting entirely of field-cured grass hay. Cows show a marked preference for grass hay or grass silage made from grass cut at an immature stage of growth. The yield of milk also was greater on hay or silage made from immature grass. Cows can consume sufficient grass in green form, or as hay, or as silage, when cut at the right stage of maturity, and properly cured or ensiled, to supply sufficient nutrients for maintenance and a yield of 35 to 45 pounds of milk per day.

Shortcomings of Certain Roughages

Data are accumulating which show that certain types of roughages are deficient in factors essential to normal growth and reproduction. In cows this is evident in failure to breed and eventually, if the ration is not corrected, in death. Young calves fed on milk from such cows fail to develop properly and invariably die with the characteristic evidences of a vitamin A deficiency. This condition may be corrected by the addition to the ration of cod-liver oil or other recognized source of vitamin A. After 6 months of age calves are much less sensitive to this deficiency. These results emphasize the importance of the quality of the roughage in the ration of the dairy cow not only in protecting the health of the cow but also in providing for human nutrition a milk suitable for infant feeding.

Alfalfa hay of good quality is superior to good grass hay and very much better than low-grade timothy hay for supplying vitamin A, and pasture is much better than any combination of dry feed. The effect of pasture on the vitamin content of the milk is marked and persists for some time after dry feeding has been resumed. The yellow color of the milk fat, which has been found to parallel the vitamin A content, is three times as high on pasture as on dry feed.

Economic conditions which tend to depress the prices of the major dairy products increase the necessity for turning the byproducts of milk into income-producing channels. The most important constituents of these byproducts are lactose and casein. In the past year dairy research workers have devised a method by which a grade of lactose satisfactory for technical purposes can be made with 1 crystallization rather than the 2 ordinarily required. This process permits the use of multiple-effect vacuum pans for concentration, thus still further reducing the cost of manufacture. It is hoped that through lowered cost the use of lactose for technical purposes may be extended. The work on casein has shown that the difficulty encountered by paper coaters caused by foaming of the casein-clay mixture can be controlled by a minor adjustment in the method of making the casein. By complying with a few fundamental principles a casein suitable for all requirements can be made in this country.

As a part of a Swiss cheese quality-improvement program, a Department specialist in cooperation with the State of Wisconsin carried on intensive educational work at a limited number of factories. This work included efforts to bring about the delivery to the factories of milk that has certain desirable properties as determined by well-known methods, examination of the starters with a view to approving them or recommending changes, and studies of manufacturing methods and other problems pertaining to the successful operation of the factories. By comparing the grades of the cheese made at the cooperative factories where this intensive work was carried on in 1932 with those made at the same factories the preceding year, it was learned that over $25,000 more was received for the cheese on account of the improvement in quality.

THE SOIL SURVEY

Results of the soil survey were utilized during the year in working out a basis for land classification in two States, the entire area of which had been surveyed. North Dakota used the soil survey as the basis for a comprehensive, exhaustive soil classification in a new land-valuation program designed to establish a fairer basis of taxation. The fundamental necessity for information supplied by the soil survey is obvious in connection with land classification, acreage retirements, and forestry, grazing, and other land-use problems.

The mapping of 27,771 square miles of agricultural lands in 29 States by the Bureau of Chemistry and Soils in the past fiscal year brought the total of land mapped and classified to date to more than 1,500,000 square miles or nearly a billion acres. The completed soil surveys of this vast area (greater than the combined area of Germany, France, and Great Britain) provide practical working maps and handbooks to assist many thousands of farmers in making the best use of their soils, and afford an inventory of national soil resources.

Study of the extremely fine portion of the soil known as the colloid showed that the plant-food storage capacity of the inorganic colloid in a soil depends not only upon its quantity but also upon its kind. This indicated that the colloid is the key to knowledge of the intrinsic fertility and behavior of great groups of soils. Data collected by the Department on the colloids of soils from all important farming regions of the United States will be of value in determining their proper utilization, whether for crops, for pasturage, or for forests.

FERTILIZER INVESTIGATIONS

Fertilizer manufacturers are adding magnesium to their fertilizer mixtures largely as a result of soil-fertility experiments in the Department and in State experiment stations. These studies showed that lack of available magnesium in some soils may seriously decrease potato yields. Small quantities of magnesium sulphate on certain soils in Virginia increased yields nearly 50 bushels an acre.

In certain soils investigators discovered zinc deficiency. An ordinary galvanized water bucket provided the clue. It enabled the Department's scientists to discover the cause and make notable progress in devising a cure for the rosette disease of pecans. Rosette first alarmed eastern growers of pecans and caused the abandonment of hundreds of acres of pecans in Florida, Georgia, and Alabama. As pecan orcharding spread westward to Mississippi, Louisiana, and Texas, the disease appeared in western groves and proved a serious problem that baffled State and Federal research workers, threatening a crop which in 1929 and 1930 had a farm value of approximately $7,500,000 a year.

In the fall of 1931 when investigators were experimenting with dips and sprays as possible methods of control, galvanized-iron pails were used. By dipping rosetted leaves in a solution of iron sulphate they were able to prevent rosette on young leaves and to improve the condition of diseased leaves. Consequently they sprayed trees the next season with iron sulphate but were disappointed with results. Checking back on the analysis of the solution they had used successfully in 1931, the investigators discovered that zinc was one of several impurities present in small quantities. Then they recalled that when they had dipped the leaves a galvanized-iron pail had been used as a convenient container for the dip and conjectured that some of the zinc in the galvanic coating might have dissolved and displaced some of the iron in the solution. They tested solutions of zinc sulphate and solutions of the other impurities. The zinc sulphate solution was effective, the others were not. Zinc sulphate also has the merit of being a relatively cheap chemical, making it economically practical as a remedy.

Improvement in the eating and shipping quality of strawberries resulted from experiments on North Carolina soils typical of the strawberry-growing sections of the Middle Atlantic Coastal Plain. Fertilizers containing 6 percent nitrogen, 8 percent phosphoric acid, and 6 percent potash gave best results. Applications of quickly available nitrogen salts in the early spring gave berries with poor shipping qualities.

DEVELOPMENTS IN CROP UTILIZATION

The Department's ethylene treatment for coloring and softening fruit was carried out during the year for the first time on a commercial scale. Its use in softening pears for canning resulted in important savings. The average cost of sorting pears had formerly been between $1 and $2 a ton. The ethylene treatment, by uniformly softening the fruit, reduced this cost to less than 2 cents a ton.

At present most of the low-grade cull oranges are sold for less than cost of production and enter into direct competition with higher grade fruit in the fresh-fruit market. Their conversion into orange juice will remove this cull fruit from the fresh-fruit market and extend the market for orange juice into locations less readily reached by fresh fruit. This is now feasible. Research in the Department showed that properly deaerated and flash-pasteurized orange juice will keep its fresh flavor for as long as 1 year under refrigeration at 35° F., and for shorter periods at ordinary temperatures. The addition of a small quantity of partly deterpenated orange oil enhances the flavor and extends the storage life of the product.

Work on fruit frozen under controlled conditions in the laboratory indicated a new approach to the detection of tree-frozen citrus fruit. Field experimentation when freezing weather strikes the citrus groves will determine whether this method can be applied practically. Immediate detection of frozen fruit, even before it leaves the groves, would be a double safeguard to the grower. It would prevent the cost of handling damaged fruit and the resultant demoralization of the fresh-fruit market and would enable the diversion of damaged fruit in bulk lots to byproducts plants for salvage before complete loss by spoilage.

About 40 American manufacturers are today making 80 different insecticidal products that contain rotenone or related products as a result of the Department's work showing the potency of rotenone as an insecticide and its complete harmlessness to man and domestic animals that may eat it.

The determination of the complete structural formula of rotenone last year by Department chemists and their present efforts to synthesize it are further steps toward its use as a substitute for lead arsenate in controlling the codling moth and other insect pests. The substitution of rotenone sprays for those of lead arsenate promises to save fruit growers the heavy cost of removing arsenical residues.

SOIL-EROSION STUDIES

Erosion studies at 10 regional erosion stations established facts in regard to the extent and rate of soil erosion, and developed methods of erosion control. Unrestrained soil erosion is rapidly building a wilderness of worn-out land in the United States. The wastage speeds up with the removal of the absorptive soil down to the less absorptive, more erosive subsoil. Approximately 35,000,000 acres of formerly cultivated land have been essentially destroyed for crop production; 100,000,000 acres of land now in crops have lost all or most of the topsoil; 125,000,000 acres of land now in crops are rapidly losing topsoil; and additional area is suffering from erosion in some degree.

Farmers operating on the 100,000,000 acres of denuded land are subsoil farmers, practicing bankrupt farming on bankrupt land whose productivity has been vastly reduced.

Methods of Erosion Prevention

Erosion varies enormously with soil character, slope, and rainfall. Thick-growing vegetation is one of the most powerful agencies of control. Practical measures call for extensive use of (1) trees and thick-growing vegetation, as grass, clovers, lespedeza, etc., on the steeper slopes and the more erosive soils; (2) practice of those rotations which keep the land under the soil-saving crops a greater part of the time; (3) maintenance in the soil of a good supply of absorptive vegetable matter; (4) use of tillage operations that favor increased absorption of rain water, such as contour cultivation, scarification of the land, subsoiling (on some lands), and keeping the soil in as coarse physical condition as practicable; and (5) use of engineering structures, such as terraces and soil-saving dams. These are some of the fundamental facts about erosion which the Department's work and that of cooperating State agencies have established.

The significance of soil character in relation to the erosion problem can be illustrated by a single example. In 1931 red soil in the piedmont of North Carolina (one of the most extensive farm soils of the Southeast) lost 13 tons of soil an acre and 13 percent of the year's rainfall on a 10-percent slope, under cotton; whereas, the Shelby loam (the most extensive corn soil of northern Missouri and southeastern Iowa) lost 105 tons per acre and 28 percent of the rainfall on an 8-percent slope used for corn. The rainfall was about the same, yet the less steep highly erosive Corn Belt land lost eight times as much soil and more than twice as much of the rainfall. The practical information on the comparative erosivity of the most important soil types in each major agricultural region, gained from the Department's work at its 10 erosion stations, is highly valuable for the program of crop reduction by indicating how the land taken out of crop production can be protected from destructive erosion.

Soil-Erosion Control

Engineering investigations in the Department demonstrated the utility of broad-base terraces, level on permeable soils in regions of light rainfall but more generally with a longitudinal grade not exceeding 4 inches per 100 feet, and properly spaced. Tests on the soil-erosion experiment farms showed such terraces to be the most permanent and effective means of soil-erosion control for cultivated lands. They interfere little with the operation of farm machinery and hold the soil upon the fields for use of the crops. Only 2 to 5 percent as much soil is washed from the terraced areas on the experiment farms as from the similar unprotected lands. Some 15,000,000 acres of farm lands in the United States have been terraced during the past 15 years, largely in accordance with methods developed by Department engineers. The present rate of terracing is about 3,000,000 acres a year. Lands so badly gullied as to be abandoned for farming have been reclaimed by small dams of brush and poles, and within 3 years the fields have been plowed, planted, cultivated, and harvested, and the gullies practically obliterated.

FORESTRY

The developments of the last 6 months have given a tremendous stimulus to the forestry activities of the Department, and a new outlook on the future. This is partly due to the initiation of the emergency conservation work and the unexpected allotment of more than $60,000,000 for land acquisition and for national-forest improvement and development work in addition to what the Civilian Conservation Corps is doing. It should be possible to accomplish within a short term of months what, as matters have gone in the past, could not have been completed within many years. Even more important is the prospect for comprehensively planned land use. Forestry and agriculture supplement and help each other and must be brought into a rationally adjusted balance that will make the most effective use, in the common interest, of the interlocking soil and water resources of the country as a whole.

The emergency conservation work was authorized by the Unemployment Relief Act, passed March 31. Three months later there were on the national forests 591 camps, each containing 200 previously unemployed young men from 18 to 25 years old who in the interval had been selected, assembled, made physically fit for work, and transported (in some cases 2,500 miles) to the designated locations. This was carried out under a Director of Emergency Conservation Work, with the Departments of Labor, War, Interior, and Agriculture cooperating.

On the national forests the Forest Service selected the projects and camp locations, provided work equipment and transportation, and supervised the field performance. It advised with and assisted the State authorities in planning and executing the emergency conservation work on State and private lands, except on parks, and had general supervision of this part of the undertaking. The number of these camps is 658.

The industrial recovery and public works legislation afforded a means of going still farther in providing for the improvement of the national forests.

Estimates of the Expenditures

Estimates of the expenditures which could be made to advantage within 2 years on projects that would qualify under section 202 of the act were prepared by the Forest Service and submitted to the Federal Employment Stabilization Board. The proposed transportation system will eventually require not less than 50,000 miles of road and some 45,000 miles of trail. For improvements other than roads and trails, the estimates for the 2 years aggregated $27,172,015. From the public-works fund provided by the act there was made available for the fiscal year 1934, $15,000,000 for forest highways, $10,000,000 for forest roads, trails, bridges, and related projects, and $15,982,745 for other classes of improvement, development, and protection work. The road and trail funds will be usable for maintenance costs as well as for new construction. Some additional funds are available under appropriation acts for the fiscal year 1934.

For more than 30 years the Government has been slowly equipping the forests with improvements necessary for protecting them, opening them up to full use, and putting their resources into better condition. When the western forests were first set aside they were merely great wilderness areas, without the most elementary requirements for their care and public use. Comprehensive and detailed improvement and development plans have long been prepared for every forest, to insure an orderly, if slow, advance. But the goal seemed indefinitely remote. Not only roads and trails were needed but also works of construction of a wide variety (lookout towers, telephone lines, buildings, firebreaks, range fences, bridges, etc.), and such undertakings as reforestation, timber thinnings, and other cultural operations, range revegetation, measures to control insect epidemics, blister rust, rodent damage, erosion, and similar injurious factors, and resource and other surveys.

The Civilian Conservation Corps is busy on thousands of projects that embrace practically the whole field, even though the relatively brief period during which the corps will be available and other limitations inherent in the plan leave a vast deal more to be otherwise provided for. When in addition to what the corps is doing, the 2-year program now beginning to go forward through use of the National recovery funds is finished, the national forests will be greatly improved in their capacity for usefulness.

Supplementary Purchase Policy

The national forests, however, are an incomplete system. At first they could be created only where suitable public-domain lands happened to be available. They have never taken in all, even of these lands. Since 1911 there has been a supplementary purchase policy for building up national forests in the East. At the close of the last fiscal year the eastern part of the system comprised 42 units within which purchases were being made. Their gross area was not quite 15,270,000 acres, of which the Government owned a little less than one half. Progress had been brought to a standstill prior to March 4. By the Executive action which directed on May 20, that $20,000,000 of the funds made available by the Unemployment Relief Act of March 31 be alloted to this Department for additional land purchases for national-forest purposes, as a means of broadening the field for employing effectively the Civilian Conservation Corps, the whole situation was changed.

Up to September 1, the National Forest Reservation Commission had authorized purchases to a total of more than 940,000 acres of land, in 30 of the established purchase units, at a total cost of $1,763,-964. This acreage is approximately one fifth as much as the total of the preceding 22 years since purchases began, and is almost twice the total in any previous full fiscal year. The Commission also approved the establishment of 13 new units, and extensive additions to a number of the old units, thus broadening the scope of the acquisition program by about 6,000,000 acres. This is a forward step of profound significance.

The national welfare demands a much broader Federal conservation program than that of the past to correct the manifold evil consequences of unchecked individualism in the handling of forest resources and to promote a properly balanced and efficient land use. The readjustments essential to the rehabilitation of agriculture will add materially to the area available for forestry. Private ownership of forest land is breaking down on a scale only partly indicated by the alarming spread of tax delinquency and land abandonment in many States, following removal of the timber growth. Current methods of forest utilization and the lack of adequate fire control have been adding rapidly to the area of idle land, and in addition have been working progressive deterioration in the stands and productive value of by far the greater part of the privately owned forests not yet near abandonment. A great national effort is called for to stem the tide now running strongly in the direction of impaired forest resources and diminished opportunities for remunerative labor in connection with their use and perpetuation.

National Plan for the Forests

On March 27 this Department submitted to the United States Senate a report of the Forest Service prepared in response to Senate Resolution 175 (72d Cong., 1st sess.) and presenting A National Plan for American Forestry. The report stated:

> The Department fully endorses the conclusions reached, that public agencies should acquire 224 million acres of forest land, including a part of the agricultural land now available, and place it under management at the earliest possible date following acquisition. A considerable part of this land has or will come into public ownership anyway by reason of tax delinquency. The States and their local subdivisions should take over as much of this acquisition program as their resources permit * * *. It is believed that the resources of the States will be fully taxed to acquire and manage 90 million acres leaving 134 million acres for the Federal Government.

The proposed plan, however, went farther than the program of public-forest ownership and administration thus briefly indicated. It contemplated assumption by the private owner, with suitable public help, of a very substantial part of the national undertaking to obtain all of the benefits, economic and social, which the forest resources of the country are able to render under a wisely devised and rightly applied plan for their best use. The code for the lumber industry adopted under the National Recovery Act appears to open the door widely for an extremely important change in this part of the field, if the right kind of industrial leadership and action, together with public cooperation to the extent necessary, are forthcoming.

The code declares as one of its purposes "to conserve forest resources and bring about the sustained production thereof"; and the applicant industries have undertaken, "in cooperation with the public and other agencies, to carry out such practicable measures as may be necessary" to this end. But if the end is to be attained, a liberal Federal contribution must be made. Both a great public opportunity and a great challenge to public action are involved which must be met promptly and vigorously.

Regulated grazing on the national forests not only has conserved and in many cases increased the carrying capacity of the ranges but also has contributed markedly to stabilization of the western range livestock industry and to better and more profitable practices of livestock management. The grazing privilege is eagerly sought by large numbers of outside livestock growers for whom there is no room. The departmental policy has always aimed at a scale of charges for range use that would obtain a fair and reasonable return for the privilege, while protecting the industry and the individual users against unstabilizing forces and competitive pressure for the ranges. The primary objective has been to make the resource contribute to healthy economic and social conditions in the dependent communities and regions.

This has precluded a policy of opening the range to competitive bidding. However, rental values of comparable range lands in the same neighborhood have in the past been the basic guide in establishing the fee schedule. Extreme drought conditions in the West in the summer of 1931 and a very severe following winter warranted a 50-percent reduction in the 1932 grazing fees, as an emergency-relief measure, and deferred payment was allowed to December 1 in place of the usual advance payment. Last winter and spring range users pressed for a continuance of the reduction. The Forest Service studied the practicability of relating the fee to the market prices of livestock.

Recommendations approved on May 27 provided for a yearly adjustment of the basic rate in accordance with changes in the average price received by livestock producers in the 11 Western States. The amount of the adjustment will be determined by the ratio that this average price bears to the corresponding average price during the period 1921–32, inclusive, for cattle, and during the period 1921–30, inclusive, for sheep. The base rate to which the adjustment applies is the average national-forest fee in effect during 1931, which was 14.5 cents per head per month for cattle and 4.5 cents per head per month for sheep. The adjustment will be made for each year by raising or lowering this base rate in the same ratio that the average price of livestock for the preceding year bears to the specified periods. It has been applied to the present grazing season and has lowered the average cattle fees 37.6 percent and sheep fees 54 percent.

IRRIGATION AND DRAINAGE STUDIES

Profitable agriculture in a large part of the West depends upon irrigation, and for many years the Department has studied the economical use of irrigation water. Irrigation requirements involve the settlement of water-rights claims; the equitable apportionment of public water supplies; the engineering determination of the capacities of canals, reservoirs, and other irrigation works; the prevention of waste in the distribution and use of the water; and the determination of the area that can be irrigated from a known water supply.

All reliable data that could be obtained have been assembled relating to experiments in the water requirements of crops. Average irrigation requirements have been determined for 97 subdivisions in the 5 regions that comprise all that part of the United States west of the one-hundredth meridian. Publication of the results should benefit not only farmers but also legal, administrative, and engineering agencies concerned with the proper use of water in the irrigated areas of the West.

Land Drainage

Many drainage districts rated as financially sound under what were considered normal economic conditions cannot meet their financial obligations because of tax delinquencies. This condition threatens the landowners in those districts with loss of their farms and discourages efforts on their part to make even partial payments to the holders of the obligations. In order to avoid complete loss of the investment, landowners and bondholders must cooperate in adopting plans for rehabilitation based on the earning power of the lands. Mutual sacrifice is necessary. Engineers in the Department worked out one method by which such financial difficulties could be settled in a plan of rehabilitation for one of the largest drainage districts in the United States. The drainage taxes to be paid by the landowners each year would be based on the crop yields and the prices received for farm products. Maintenance of the drainage works, in order to conserve the earning power of the lands, would be provided before determination of the amount available for payment on the bonds, and that amount would be accepted in full for the bonds due that year.

COTTON GINNING AND FARM MACHINERY

In order that the full inherent quality of the cotton crop harvested may be obtained by the growers, cotton must be properly conditioned and ginned. At the cotton-ginning laboratory of the Department, improvements in the design of seed-cotton driers have been made that simplify the construction and reduce the cost of these machines, besides increasing their effectiveness in conditioning the cotton for ginning. Some 45,000 bales of cotton were conditioned last season in commercial driers, using the process patented by the Department. The value of that cotton was enhanced 60 cents to $5 per bale above the cost of drying. Experiments showed, however, that the ill effects of rough harvesting methods cannot be entirely overcome by the conditioning and cleaning machinery now available.

The Department recently designed and constructed a combination planter and fertilizer distributor, with which experiments in fertilizer placement can be extended to include snap beans on bedded fields. A trash guide of new design was developed for corn-borer-control work. This covers crop debris with smaller plows than were effective previously. Improvements in methods of artificially drying freshly harvested rice, particularly by establishing proper temperatures and exposure periods, greatly reduced the cost of drying and at the same time bettered the quality of the product. A variable-depth attachment for cotton planters, developed to place the seed regularly from minimum to maximum planting depths, was covered by public patent. In many comparisons with uniform-depth planters, during two seasons, this device largely eliminated the necessity for replanting, and materially better yields were obtained. Manufacturers are adapting the variable-depth principle to planters for some truck crops.

INSECT-PEST CONDITIONS AND CONTROL

The grasshopper plague in the northwestern Plains States, which caused such heavy destruction of crops in 1931 and 1932, continued during the present season (1933), being especially severe throughout much of North Dakota and extending southward into central and eastern South Dakota, northeastern Nebraska, and westward over eastern and northern Montana, with isolated or less severe infestations in some half dozen other Western States. In general this situation closely paralleled the predictions from the egg surveys made in the fall of 1932.

The outbreak of the last three seasons in the Plains States is unprecedented as to area and continuance and resulted from a gradual building up during 2 or 3 favorable years prior to 1931 of common types of Plains grasshoppers. In Minnesota and North Dakota grain and other crops were given very material protection by extended use of poison bait. Minnesota furnished bait to the cost of nearly a quarter of a million dollars for use of farmers, and from State, county, and other sources some $80,000 was similarly expended in North Dakota. The benefits of the fairly adequate use of baits in Minnesota in 1932 were reflected in 1933 in the great diminution of area in which grasshoppers occurred in destructive numbers. In North Dakota the control was not sufficient to prevent extended egg laying in the fall of 1932, and this was reflected in wide-spread grasshopper damage in that State the present season.

Mormon Cricket

The Mormon cricket, outbreaks of which have been effectively controlled in recent years, assumed a threatening status on the Fort Hall Indian Reservation in eastern Idaho in 1932 which, though fairly well controlled, carried over into 1933. By pooling the resources of the Indian Service together with the assistance authorized by this Department in the purchase of calcium arsenate and dust guns, a control campaign was carried out in cooperation with State agencies which prevented crop losses. The appearance of this insect, however, in other isolated areas in Idaho and its reappearance in northwestern Colorado indicates that trouble from it may again be expected next season.

Bollweevil

In the spring of 1933 the bollweevil outlook threatened heavy crop damage on the basis of the unusually large number of weevils entering hibernation in the fall of 1932 and the very considerable weevil survival, though small in percentage, into the spring of 1933. The excessive drought and heat in June and July over much of the cotton area greatly checked weevil development, and serious infestation has been spotted and limited to areas of more or less localized rains. A biological factor of much interest in relation to the weevil is the definite determination this season that a malvaceous plant, althea (*Hibiscus syriacus* L.), widely used in the South as a hedge plant and ornamental, may serve as a host of the weevil.

Pink-Bollworm Eradication

Measures directed against the pink bollworm in Texas, New Mexico, and Arizona, were highly successful in both the eastern and western sections of the formerly infested area. In the Salt River Valley of Arizona, no pink bollworms have been found since the 1931 crop. It was possible in September 1932 to remove the fumigation requirement that had been maintained as a condition for the interstate shipment of cotton from that valley. The insect was also eliminated from seven counties of western Texas adjoining the southeastern portion of New Mexico. These counties were entirely released from quarantine regulation in the spring of 1933. Outside of Florida, the known pink-bollworm infestations in this country are now confined to the limited irrigated sections between the Pecos Valley of western Texas and the Safford Valley of Arizona.

Surveys around the Florida outbreak of the pink bollworm showed the presence of the insect in a few cotton fields in the northern part of the State in Alachua and Columbia Counties, in addition to the infested wild cotton of the southern section of the State. A vigorous eradication program is now under way using substantially the same methods that have been successful elsewhere. The Florida infestation is largely confined to wild cotton on the keys and along the Atlantic and Gulf coasts of the southern part of the peninsula. Infestation in wild cotton extended up the west coast from Naples to Tampa Bay, which is within 150 miles of commercial plantings. The wild cotton north of Naples has been eradicated, and excellent progress has been made in destroying the wild cotton in the southern part of the State and on the keys. Destruction of this wild cotton is important for the protection of the main Cotton Belt of the United States lying several hundred miles to the north. If an infestation in the wild cotton on the keys and in the southern part of the peninsula were allowed to persist indefinitely, the Cotton Belt could probably not be permanently protected.

The section which is subject to the heaviest damage from the pink bollworm is the Big Bend area of Texas. An energetic clean-up program was carried on in that area during the past winter to reduce the heavy infestation and limit the risk of its spreading.

The roller method of sterilizing cotton lint to prevent the spread of the pink bollworm was developed and applied commercially during the year. The operating cost of applying this treatment is 1 cent per bale, as compared to a cost of $1.25 to $2 per bale for fumigation, or $0.75 to $1 per bale for compression.

Beet Leaf Hopper

The growers of sugar beets in the important southern Idaho district centering at Twin Falls have come to have full confidence in determining their plantings on the basis of the predictions of the Department specialists on the type and volume of migration of the beet leaf hopper to be anticipated from the wild areas of winter hibernation and early season breeding. The studies of the pest have determined its migration in the fall to these wild areas and its breeding up in such areas to return, following the drying up of natural food plants in early summer, to the irrigated areas. Predictions of probable abundance or scarcity of leaf hoppers have now been correct over a period of 7 years, with the single exception of 1930. In that year the important migration came from an area in the Northwest from which no migration had previously been determined. The surroundings of this Idaho district are now fully covered by the annual fall and spring surveys, and the correctness of the warnings issued have been notable in the last 3 years (1931–33).

In the important beet-growing districts in the San Joaquin-Sacramento Valleys of California, similar studies of migration and breeding of these leaf hoppers have been made. In the last 2 years in these districts, a very promising type of control has been secured by spraying the leaf hoppers following their fall migration and concentration for the most part in grassy valleys or canyons surrounding the irrigated district. Such control has been carried out under the direction of this Department, following its initiation by important interests engaged in the production of beets and the manufacture of sugar.

Mosquito Control and Unemployment

The importance of mosquitoes as pests and as carriers of diseases of man and animals has made necessary the investigations of the habits and means of control of the many species involved. Drainage is one of the most effective and generally applicable methods of control. It is desirable to apply work relief to projects which will yield distinct public benefits, and therefore the possibility of utilizing the unemployed in drainage operations received early consideration. In such work a very large percentage of the funds expended go to hand labor. This fact, and the immediate, widespread and relatively permanent benefits derived from mosquito control, together with the proximity of serious mosquito conditions to centers of population where unemployed problems exist, highly commend this work. Some cooperative surveys of mosquito problems have been undertaken. Several States have made rapid progress in draining vast salt-marsh areas where myriads of mosquitoes have been produced heretofore.

Spotted-Fever Tick

The occurrence of the deadly disease of man known as Rocky Mountain spotted fever in the Eastern States has naturally focused attention on the ticks which transmit it. The American dog tick is the carrier of the disease in the eastern half of the country. This dreaded malady has appeared in nearly every State; hence the problem is truly a national one. Methods of reducing the dangers of infection have been developed as a result of investigations of the tick concerned. These consist of steps to avoid the attachment of the tick to man and the reduction of the tick population near habitations. It is important to prevent engorgement of the adult ticks on dogs and horses. This may be done effectively by applying certain insecticides, especially derris powder. The immature ticks develop on small wild rodents, such as field mice, hence the destruction of these animals is indicated, especially by exposing them to the attacks of birds and animals of prey. This can be accomplished by clearing out underbrush, tall grass, and weeds near homes and camps. The utilization of the unemployed in this work has been recommended to communities where the disease occurs.

European Corn Borer and Phony Peach Disease

Two domestic plant quarantines, one relating to the European corn borer and the other to the phony peach disease, were revoked during the year.

The lifting of the European corn-borer quarantine was necessitated by lack of available funds for its adequate enforcement. This action was promptly followed by the issuance of State quarantines by some 27 States against the 13 infested States. These State quarantines restricted shipments to a considerably greater extent than was the case under the Federal quarantine and threatened serious interference with the movement of corn and certain other host plants of the borer out of the infested area. The difficulty was solved by the inclusion in the Agricultural Appropriation Act of an item for the certification of such products to meet the requirements of State quarantines, and a Federal inspection service was set up in March to supply the demand for this type of certification. This action establishes a precedent in dealing with domestic plant quarantine problems and is a distinctly forward step in the prevention of spread of plant pests, without undue hardship to the general public.

The anticipated heavy increase in damage by the European corn borer in the Great Lakes region did not develop. Such increase of population and damage was predicated on the unusually heavy larval populations successfully passing the winter in cornfields. However, unfavorable spring and early summer conditions so delayed planting and development of the corn in this one-generation area that when the moths emerged, the corn was too small to be attractive. In addition to this, the egg-laying period coincided with unusually hot and dry weather, resulting in the killing of many of the egg masses shortly after deposition. The field counts to determine the actual status of corn-borer population will not be available until October, but the indications point to no increase in this area.

The phony-peach-disease quarantine was canceled in March, as the discovery that the disease occurred over much more extensive areas in the South than had previously been known indicated that its further spread could be handled more satisfactorily by improved and modified nursery inspections in the various States than by the enforcement of a Federal quarantine. Department investigations point strongly to the peach borer as the carrier of the disease, and the prevention of spread of infection will now be undertaken by the various States through the inspection of the environs of peach-growing nurseries and the elimination of peach-borer infested or injured stock. The Department will continue to aid in the eradication of the disease and in the development and adoption of improved culling practices by the various State nursery inspectors.

Insecticide Residues

The presence of excessive amounts of spray residue found on deciduous fruits and vegetables moving interstate, and the increasing demand of consumers that such products be free from harmful residues placed added emphasis on the problem of controlling insects attacking deciduous fruits and vegetables. It stressed the need of using methods or materials that would eliminate or reduce injurious residues on the product when it appeared on the market. The Department reviewed the standard methods used for the control of insects attacking deciduous fruits and vegetables and issued circulars containing recommendations for the control of a number of important pests. The revised recommendations placed special emphasis on the time and method of applying insecticides and urged the use of supplementary controls such as sanitary and cultural practices. Revised schedules for the control of insects on vegetables and small fruits, such as strawberries and blackberries, eliminated the use of arsenate of lead and restricted the other arsenicals to plants in such stages of growth that they do not reach the market.

For the control of insects attacking deciduous fruits it was recommended that the use of arsenate of lead be restricted as far as possible. For the control of the grape berry moth, the most important pest of the grapes produced in the eastern area, it was recommended that calcium arsenate be substituted for lead arsenate. The spray schedules for the control of the codling moth suggested the use of calcium arsenate with lime and a sticker or nicotine sulphate and mineral oil during the latter part of the season and, where many sprays were necessary, emphasized adequate washing prior to consumption or marketing.

DIET INVESTIGATIONS

Plans for adjusting agricultural production to consumption should include the utilization of foodstuffs by the family in the home, which, after all, is the part that means most to social welfare. Although we may now be the best-fed nation on earth, despite various shortcomings, yet there is still much room for improvement. We can practically wipe out rickets, pellagra, and other ills that come from faulty nutrition. We can build up the national health through better food habits and prevent many diseases which are hastened if not actually caused by wrong choice of food. The goal is optimum nutrition.

The first step is to produce the right kinds and the right quantities of foods so that people on farms and people in cities may have a well-balanced diet. At the same time the Nation must have facts about diet in relation to health, the standards of good nutrition, and the guiding principles in selecting a diet that promotes and safeguards health. Families need information on how to get such a diet with the amount of money they have to spend for food.

This year the home economists of the Department finished drafting master diet plans to furnish such a guide. These plans translate the scientific facts on food values and nutrition into specific quantities of foods on a two-way basis, nutritive content and cost.

Four typical diets at four levels of cost are included: A liberal diet when there is plenty of money to spend on food; a moderate-cost adequate diet; a minimum-cost adequate diet; and a restricted diet only for emergency use, such as relief agencies in many localities were forced to follow during the economic crisis. Some relief agencies, fortunately, were able to hold to the next higher standard, the adequate diet at minimum cost which provides a wider margin of safety, and this the Department counseled them to do wherever possible.

Each of these plans gives the quantity of foods needed yearly per capita on the basis of our population according to the 1930 census. Starting with pounds of flour and cereals and quarts of milk, the list gives definite quantities for each group of foods as delivered to the consumer's door. For example, on flour and cereals it runs: Liberal diet, 100 pounds; moderate-cost adequate diet, 160 pounds; minimum-cost adequate diet, 224 pounds; restricted diet for emergency use, 240 pounds. Incidentally, this brings out also the important place the cereals fill in the lower cost diets.

In these per capita figures little allowance could be made for waste by the consumer or wastes in distribution. Waste in the kitchen is very difficult to estimate. What one household considers thrift another calls willful waste, and beyond question much good food is thrown away in public eating places. In converting these per capita figures into crop-production guides, suitable margins must be added to cover losses in harvesting and grading, deterioration in transportation and storage, and so on to final retail distribution.

Needs of Individuals and Families

Next, these pattern diets break down into quantities of foods for individuals and for families of different make-up. The nutrition experts find that, after 4 years of age and through adolescence, boys and girls need different quantities of food. An active growing boy generally needs the most food when he is 15 to 18 and a girl when she is 13 to 16. The boy in his teens has a right, it seems, to eat the family out of house and home. Adults differ also in their food needs depending on whether they are men or women and whether they have indoor jobs or do strenuous out-of-door work. These diet plans recognize all these widely different food needs of persons from babyhood to adult age and work them out in terms of pounds, quarts, and dozens of standard foodstuffs. So practical and so definite is the information that an extension worker can sit down with a farmer and his wife and help them make out a food budget for the year ahead, telling exactly how much of each kind of food they need to grow at home and how much they will have to buy in order to keep the family well nourished. Or a social-welfare worker advising a group of city women can help them draw up market lists to suit their incomes, never forgetting what this food means to family health.

Figured on the basis of 1931–32 retail prices, these four pattern diets range from $61 to $165 per capita per year. Or, worked out another way, it took, on the 1931–32 price level, $79 to buy a restricted emergency diet for a very active man and $215 to provide him a liberal diet. The minimum-cost and the moderate-cost adequate diets fall in between. The constant shifts in food prices make these cost figures of value only for purposes of comparison. Furthermore, they do not allow for the personal element in buying. Some housekeepers are shrewder shoppers than others. Given the same sum of money and the same market list probably no two women would go out in a city market and buy exactly the same foods. So when the food economists fix an average price on a diet, they do not expect it to be taken too literally. Some shoppers will beat the average and get more for their money; others will always fail to pick up the bargains.

The lowest diet is included only for emergency use, as during the years when unemployment took many families down to bedrock and below. It is not what dietitians would ever recommend from choice. But it does show how to lay out a meager amount of food money to get the greatest return in nutritive value. It represents quantities of food, especially protective foods rich in minerals and vitamins, below which no diet can safely fall. Relief workers and others cooperating in this plan for a low-cost diet helped many families to weather the crisis without permanent damage to health. The adequate diets at minimum and moderate cost recommend freer use of milk, vegetables, fruits, lean meats, and eggs. They appeal more to the appetite, and they furnish a generous margin of safety on the nutritive side. The liberal diet at the top of the scale will promote better-than-average nutrition.

In cities many families of skilled wage earners and well-to-do business and professional men spend enough money to serve this liberal diet on their tables regularly, but probably relatively few select food which has so high a nutritive value. Certainly far too few farm families have food that reaches this high level. A survey of a group of farm and village families in what is normally a prosperous part of central New York State showed that while their food had a money value somewhere between the minimum- and moderate-cost adequate diet mentioned, the diets of more than two thirds of the families were not adequate nutritionally as judged by our present standards.

GAME CONSERVATION

Critical conditions exist in waterfowl-breeding areas in the northwestern part of the United States and in the prairie Provinces of Canada. The numbers of the birds, vastly important for food and as a recreational resource, have been reduced by severe droughts, land settlement, and steadily increasing pressure from hunting throughout their ranges. Hundreds of observers from the Arctic Ocean to the Mexican border made reports to the Bureau of Biological Survey on local situations. At 50 bird-banding stations supervised by the Bureau, more than 31,000 ducks and geese were banded to determine accurately their principal stopping points and their routes of travel. Biologists in the Department studied conditions during both the southward and northward migrations, and on the chief winter-concentration and feeding areas of the birds. The information thus obtained afforded a basis for regulations governing the protection of waterfowl and the hunting privileges that may be permitted under the Migratory Bird Treaty Act.

Following the droughts of 1929 and 1930 observers noted that eelgrass, an important salt-water food for wild fowl, was seriously affected throughout its entire American range and was disappearing. That the cause was not directly traceable to the drought was shown by available records of similar trouble in other parts of the world. Drought conditions, however, by altering the saline content of the water supporting stands of eelgrass, probably favored the destructive agent, which is probably a bacterial disease. Eelgrass normally is the most important food plant of the brant and to a considerable extent of certain other wild fowl and is utilized also as an article of commerce. The greatly reduced supply was accompanied by an alarming decrease in the numbers of brant, estimated in some localities to be as much as 90 percent. As a result of these findings, the brant on the Atlantic coast are given complete legal protection during the coming year, by amendments to the regulations under the Migratory Bird Treaty Act.

Migratory Bird Refuges

On May 29 the President approved the establishment of Civilian Conservation Corps camps at the Blackwater Migratory Bird Refuge, Md., the Swanquarter Migratory Bird Refuge, N.C., and the St. Marks Migratory Bird Refuge, Fla. These refuges were acquired by the Department under the Migratory Bird Conservation Act of 1929 and have been under administration of the Bureau of Biological Survey for about 2 years. With the aid of the Conservation Corps extensive developments at each refuge will include the construction of roads, trails, fire lines, and look-out towers, and of dams to create fresh-water ponds for wild-fowl food production. These improvements will greatly facilitate the administration of the several areas and materially improve their value in wild-life conservation.

In the 4 years since the Migratory Bird Conservation Act went into effect the Migratory Bird Conservation Commission has authorized the Department to acquire by purchase 137,664 acres for refuge purposes. Throughout the 48 States 141 proposed refuge sites, aggregating 3,710,927 acres, have been examined and appraised by the Bureau of Biological Survey under the provisions of the act, and 22 refuges have been created in 17 States and Alaska, at an average cost for lands purchased and in process of purchase of $4.57 per acre. There also have been taken 936,687 acres by Executive order, 2,033 by gift, 12 by act of Congress, 1,944 by lease without option to buy, and 6,343 by cession, bringing the total to 1,084,683 acres. The increase of 830,130 over the acreage under jurisdiction last year is largely through the establishment of the Boulder Canyon Wild Life Refuge of 659,130 acres, superimposed on the area for the development of the Boulder Canyon water power project, and the withdrawal of 135,184 acres of public lands in central Nevada, where additional studies will be made to determine their ultimate refuge value through the development of water resources. Progress on establishing the Cheyenne Bottoms Migratory Bird Refuge, Kans., has ceased for lack of appropriations to carry out the intent of the act authorizing it.

Fur Farming

American fox farmers harvested 150,000 silver-fox skins during the season 1933 and disposed of the bulk of them at prices that under prevailing conditions were considered very fair. An early European demand for American silver-fox skins saved marketing boards and auction companies from disposing of pelts at ruinous prices. Financially the fur-farming industry has been in good shape and the average fur farmer has had no heavy encumbrances. Bank closings, however, created problems in financing the feeding and care of the young foxes that were to provide this year's crop of fur. The Bureau of Biological Survey assisted fox farmers and their organizations in presenting their case to governmental agencies as an enterprise deserving financial aid to carry them over the critical period.

A general wave of buying during June and July advanced prices on the fur markets as much as 60 percent, the average being about 25 percent. Shippers and dealers were more optimistic than in 1932. The fur industry caught up on some of its back indebtedness and liquidated large quantities of skins at a profit.

AGRICULTURAL EXPERIMENT STATIONS

The Department, through its Office of Experiment Stations, administers the Federal funds appropriated for the State agricultural experiment stations and for the experiment stations in Alaska, Hawaii, and Puerto Rico. During the fiscal year ended June 30, 1933, the Federal funds involved included $4,320,000 for the State experiment stations and for the experiment stations in Alaska, $64,000 to Hawaii, and $78,560 to Puerto Rico, or a total of $4,477,560.

The Department coordinates its work with that of the experiment stations to prevent unnecessary duplication and to adapt it to the varying conditions and needs of the several States and Territories, as well as to the Nation as a whole. More than 1,000 formal projects and a number of informal undertakings are now in progress, with a steady improvement in the cooperative work and relationships. The experiment stations necessarily have to deal with a wide range of local conditions, needs, and problems. They have an exceptional opportunity to extend and make more effective the work of the Department as a national research agency. Some recently reported examples of station work will show that the experiment stations, while highly responsive to local needs and problems, are also alive to the larger questions of national policy.

Soil Surveys in Forestry

Illinois has plans well under way for two national-forest units involving 599,232 acres in southern Illinois. These plans would be less advanced but for the soil survey. Facts collected in the survey were used for blocking out the two units. If these national-forest units materialize, they will be included in the national reforestation program and will employ hundreds of men. They will take thousands of acres of marginal and submarginal land out of production. This will relieve the counties and the State of maintaining roads and schools in the area. The money that the counties will receive from the forests will far exceed what they would have realized from taxes.

New Uses for Idle Acres

Reduction of farming in Massachusetts has resulted in many idle acres. Although a considerable amount of the area may be taken up for part-time farming, recreation, and residential uses, the major part must be utilized for the growth of trees. The Massachusetts Agricultural Experiment Station urges increased use of the lands for recreation and forestry. Much of the idle land is well suited for pasture. Stony upland pastures, the Experiment Station has shown, can be profitably improved with a relatively small outlay for fertilizers.

Revising Taxation Systems

Results of considerable social and economic importance resulted from taxation studies reported by the South Carolina Agricultural Experiment Station. These studies furnished the basis for discussion of tax reform during the 1933 session of the State Legislature. Farmers as a group are overtaxed. Until these studies were made, however, there was no basis, as far as South Carolina was concerned, for proper legislation. The findings of the Station, it is believed, will bring about a reorganization of the system of taxation to the advantage of the State and of its farmers. The Louisiana Experiment Station made a study of taxation in that State, which it is believed will serve as a guide in revising the tax system. Research by the Pennsylvania Station furnished the basis for a proposed revision of tax laws.

Improving the Quality of Cotton

South Carolina and other Southeastern States until recently failed to produce cotton of the quality demanded by the mills. A survey by the State experiment station showed that the mill requirement is largely for cotton fiber ranging from $\frac{15}{16}$ to $1\frac{1}{16}$ inches in length, but that the mills were able to get only about one fourth of their needs in the State. Through variety tests, fiber studies, and spinning tests the Station showed that cotton of the desired quality could be produced in any part of the State at no greater cost than the short stapled, poorer quality, commonly grown. As a result of recommendations based on these findings, the production of cotton of the staple lengths desired increased from 38 percent of the total crop in 1928 to 75 percent of the crop grown in 1932. This change represented, even at depression prices, an increased income to the farmers of the State of more than $600,000 annually. The mills are now getting, nearby, practically all the cotton they need of the staple lengths mentioned.

Mineralized Milk

Milk is widely recognized as more nearly a complete food than any other single item common in the feed of animals or in the diet of human beings, but it has never been possible to rear experimental animals from weaning to maturity on cow's milk alone. After a few weeks on an exclusive milk ration, the animals lose in weight and die of anemia. The inability of milk to produce the necessary hemoglobin in blood has been attributed to its low iron content. The Wisconsin Experiment Station demonstrated that milk is deficient also in copper and that copper is indispensable in the nutrition of mammals. It is required as a supplement to iron in the formation of hemoglobin, and adding inorganic iron and copper salts to milk will prevent anemia. The station proved also that the addition of traces of manganese to a diet of cow's whole milk supplemented with iron and copper had a favorable effect on growth and reproduction. Pigs made greater growth on the mineralized milk alone than on a standard mixed ration, and rats grew and reproduced normally through four generations on an exclusive diet of mineralized milk.

Snow Surveys for Forecasting Water Supply

The amount of snow on the mountains is a matter of the greatest concern to farmers and stockmen, as well as to municipalities and power plants, in regions of deficient rainfall, because it is the measure of the water supply for the coming season. Snow-survey methods perfected by the Nevada and Utah Experiment Stations furnish a practicable means of measuring the snow cover and predicting the available water supply. The high watersheds of Utah are covered with a network of snow-survey courses, which serve as a basis for determining the run-off for each watershed and forecasting the stream flow. Wide practical application for this purpose has been made of the snow-cover survey methods.

FOOD AND DRUGS ACT

The original purpose of Congress in enacting the Federal Food and Drugs Act, namely, to safeguard the consumer against the sale of adulterated and misbranded foods and drugs and thus to protect the public health and pocketbook, has never been altered. But, for more than 15 years, Department officials have recognized that the law has definite limitations. It does not take into sufficient account the vast change in conditions which has come about in the food and drug manufacturing industries since the law was passed in June 1906. The Department has repeatedly advocated legislation to bolster up the weak points.

The Department's urge for a strengthened bill culminated, during the fiscal year, in the introduction in Congress of a completely new food and drug law designed to supplant the existing measure. This bill, Senate 1944, introduced by Senator Royal S. Copeland of New York on June 12, was prepared in the Department of Agriculture by direction of the President and with the active cooperation of the Secretary and the Assistant Secretary of Agriculture. Before it was introduced, the measure received the approval of the Department of Justice. It preserves all of the good features of the present law.

Among other things the new bill contains the following provisions:

Cosmetics, hitherto not covered by the Food and Drugs Act, are brought under regulatory authority.

Mechanical devices intended for curative purposes, and devices and preparations intended to bring about changes in the structure of the body are included.

False advertising of foods, drugs, and cosmetics is prohibited. The average consumer is guided far more by claims made in advertising copy than by the necessarily modest declarations printed upon labels of goods shipped in interstate trade.

Definitely informative labeling is required. The present law, insofar as labeling requirements are concerned, is very largely negative. It specifies that labels must be truthful but requires a minimum of information.

A drug which is, or may be, dangerous to health under the conditions of use prescribed in its labeling is classed as adulterated, and therefore illegal. This provision will prevent the indiscriminate marketing of drugs which should be administered only under careful supervision and control.

Promulgation of definitions and standards for foods which will have the force and effect of law is authorized. Without such standards it is extremely difficult for the Government to establish in court, before a lay jury, violations involving adulteration or misbranding of foods.

The prohibition of added poisons in foods, or the establishment of safe tolerances thereof, is provided for. Many food plants may at one stage or another in their growth develop or be contaminated with poisonous substances. Where the presence of poisons is unavoidable, the quantities of the injurious ingredients must be kept so low that by no possibility will the food be harmful. Under the new bill the Secretary will have authority to establish safe tolerances for injurious ingredients and to prohibit interstate traffic in foods which contain poisons in quantities exceeding the tolerances.

The operation of factories under a Federal permit is provided where protection of the public health cannot otherwise be effected.

More effective methods are provided for the control of false labeling and advertising of drug products.

More severe penalties for violations, as well as injunctions in the case of repeated offenses, are prescribed. The low penalties provided in the present act are inadequate to check first or repeated offenses.

Enforcement of the Law

Enforcement of the Federal Food and Drugs Act necessitated the initiation during the year of almost 3,000 legal actions against adulterated or misbranded foods and drugs, or their manufacturers. As in the past, the Food and Drug Administration concentrated its efforts on offenses involving public health. The Administration continued to devote from one fourth to one third of its appropriations to the control of interstate shipments of fresh fruits and vegetables found to carry residues of poisonous sprays, such as lead and arsenicals. Two hundred and forty-one seizures of fresh fruits and vegetables which carried injurious residues of poisonous chemical sprays were made, and 32 prosecutions of shippers of such commodities were instituted. The commodities seized included cauliflower, celery, lettuce, cabbage, pears, apples, and crab apples.

During the shipping season, members of the Food and Drug Administration spent literally night and day taking samples from the enormous traffic in fresh fruits and vegetables moving from producing points to marketing centers. Products other than fresh fruits and vegetables also were found to contain potentially injurious residues of arsenic or lead. Among these products were vinegar and apple pomace, chops, and pulp. The Government seized and destroyed 72,000 gallons, or one tank car, of vinegar which was adulterated with arsenic. In the survey of products made from fruits sprayed with lead arsenate, the Administration caused the seizure, in 1 month, April, of approximately 5,500 bags of adulterated apple pomace. The food was shipped by producers in towns in Pennsylvania, New York, Missouri, Michigan, and Washington to consignees in various parts of the country. The pomace was found to contain residues of arsenic or lead, both poisonous.

Spray-Residue Removal

It is necessary for growers to use chemical sprays in order to control the ravages of insect pests. Lead arsenate, calcium arsenate, and other chemical combinations have been found to be effective in destroying insects which prey upon crops. The grower, in order to obtain a crop at all, must use sprays, some of which are potentially injurious to the health of consumers. But the Department's duty to the public in the enforcement of the pure food and drug law necessitates rigid checking of all shipments of fresh fruits and vegetables which contain such residues of chemical sprays as may be harmful to the consumer. Proper cultural practices, in the production of fruits and vegetables, combined with careful washing of the commodity before marketing, are effective in removing spray residue.

In regulatory control over interstate and foreign shipments of adulterated or misbranded foods, drugs, and stock feeds, the Department seized 1,195 consignments of foods, 416 shipments of drugs, and 13 stocks of stock feeds. The year's prosecutions of manufacturers or shippers totaled 638 for foods, 453 for drug products (including livestock remedies), and 62 for stock feeds. Drug seizures included 74 consignments of livestock remedies which were adulterated, misbranded, or both, and 16 prosecutions were instituted in the case of livestock-remedy shipments. The year's grand total of all prosecutions and seizures of foods, drugs, and stock feeds was 2,777.

Seizures covered a wide variety of adulterated or misbranded foods, including short-weight butter, partially decomposed fish and sea foods, fresh fruits and vegetables which carried residues of poisonous chemical sprays, and many other products. The Government also removed from the market, by seizure, a large variety of patent or proprietary remedies, falsely and fraudulently labeled as being effective in the cure of such serious diseases as tuberculosis, pneumonia, diabetes, venereal disease, Bright's disease, cancer, and other maladies.

FEDERAL-AID ROAD CONSTRUCTION

Projects involving the improvement of 13,255 miles of the Federal-aid highway system were completed during the fiscal year with Federal assistance. On 8,503 miles the work consisted of initial improvements, so-called because it was the first to be carried out with Federal aid on this particular mileage. On 4,700 miles previously improved with Federal aid to some extent, the years' work raised the condition of the roads to a higher level of improvement and was classed as stage construction. On the remaining 52 miles the work completed was classed as reconstruction.

The total cost of the projects completed during the fiscal year 1933 was $234,383,376, of which $104,673,506 was paid outright as aid by the Federal Government and $4,502,467 was advanced from the emergency appropriation of $120,000,000 made by the Emergency Relief and Construction Act of July 21, 1932. Many of the projects completed during the fiscal year were begun in previous years; the above expenditures were not confined to the single year but were made throughout the period of construction.

Actual disbursements of Federal funds during the year, including all sums paid for work in progress, amounted to $101,266,331 of regular Federal-aid funds, and $62,131,961 of emergency construction funds.

The mileage completed during the year brings the total classed as completed to 107,869 miles, which excludes 3,986 miles in course of stage construction or reconstruction at the end of the fiscal year.

The total completed mileage includes more than 543 miles of bridges more than 20 feet in span and their immediate approaches, 47,329 miles surfaced with high-type pavements, 8,800 miles with 47,329 miles surfaced with high-type pavements, 8,800 miles with intermediate-type surfaces, 39,420 miles with low-type surfaces, and 11,777 miles unsurfaced but graded and drained to satisfactory standard.

At the close of the fiscal year work was in progress on 12,383 miles of the Federal-aid system. This included, in addition to the 3,986 miles of stage construction above mentioned, 8,397 miles on which no previous Federal-aid work had been done.

Emergency Funds

The Emergency Relief and Construction Act of 1932, approved July 21, 1932, appropriated $120,000,000 to be advanced to the States for use in lieu of State funds to match the regular Federal-aid funds available. The sums advanced are to be reimbursed to the Federal Government by deduction from future Federal-aid appropriations over a period of 10 years commencing with the fiscal year 1938.

It was originally provided that only such parts of the sums apportioned as were actually expended for work performed before July 1, 1933, should be available. By subsequent amendment of the act the period of availability was extended to December 30, 1933.

On June 30, 1933, the original terminal date, all but $3,258,018 of the $120,000,000 appropriated had been obligated to definite construction projects and $85,254,000 had been earned by the completion of work. Of this amount $62,131,961 had been actually paid to the States.

The effect of this expenditure upon the volume of employment afforded by road work appears in the differences between employment figures for the fiscal years 1932 and 1933. In the former year only regular Federal funds were available for expenditure during the 10 months from September 1931 to June 1932, inclusive. During the first 2 months of the year the emergency appropriation of December 1930 was still being spent. Last year these conditions were reversed. Only regular Federal-aid funds were expended in July and August, and the expenditure of the $120,000,000 emergency appropriation began in September and continued throughout the year.

During the 10-month period of the fiscal year 1932, when only regular Federal-aid funds were available, the total direct employment afforded by Federal-aid road work was 524,170 man-months. During the similar period of the fiscal year 1933, work provided by the $120,000,000 emergency appropriation swelled the total of employment afforded to 1,085,144 man-months, or more than double the previous year's total.

On all Federal and State road work, including Federal work in the national forests and parks and public lands and independent State construction and maintenance work, direct employment totaled 2,666,058 man-months in the 10 months of the fiscal year 1932. The same classes of work in the 1933 period produced direct employment in the amount of 3,200,320 man-months, a gain in the latter year of 534,262 man-months. This gain was attributable entirely to the expanded Federal contribution.

Expenditure of the emergency funds beginning in September 1932 caused a sharp rise in employment on Federal-aid work from an average of 84,675 men in August to an average of 117,975 in September. Continuing at 117,024 in October the number employed rose to a peak of 123,389 in November and then dropped to a low of 72,592 in January 1933, after which it again rose quickly month by month to a midseason peak of 142,957 in June 1933. At midwinter the Federal-aid work of the last fiscal year gave employment to nearly 50,000 more men than were employed during the preceding winter. At midsummer the past year's employment exceeded that of the previous year by more than 70,000 men.

National Forest Roads and Trails

Construction of 359 miles of forest highways was completed during the fiscal year 1933. At the close of the year there were 5,593 miles of improved roads in the forest highway system.

Forest highways are the main roads traversing the forest areas and connecting with the Federal-aid highway system at the reservation boundaries.

WEATHER BUREAU

It was necessary to maintain the regular activities of the Weather Bureau at an expenditure from 20 to 25 percent less than that of recent years.

Various services had to be curtailed. Means were adopted, however, which increased the effectiveness of reports received from ships at sea, especially during the prevalence of hurricane conditions in the waters of the Caribbean Sea and the Gulf of Mexico. This was done with the cooperation of the major radio companies, whose stations along the South Atlantic coast make special calls for reports at designated hours from ships known to be in the areas in which a tropical disturbance is in progress.

The so-called " International Polar Year " extended from August 1, 1932, to August 31, 1933. By elaborate and concerted agreements between all meteorological services of the different nations, including intimately related scientific organizations, the year was marked by a unique set of complete and intensive observations of meteorological and related natural phenomena, especially at stations in high polar latitudes in the Northern Hemisphere. This work commemorated a somewhat similar project inaugurated in 1883. Analysis and development of the results obtained by this unique system of international observations will be extremely valuable.

HENRY A. WALLACE,
Secretary of Agriculture.

WHAT'S NEW IN AGRICULTURE

AGRICULTURAL Adjustment Measured in Progress Toward Parity Prices It is the purpose of the Agricultural Adjustment Act to raise the purchasing power of farm commodities to the pre-war parity. Progress toward that goal, however, cannot be rapid, for agriculture has tremendous maladjustments to correct, and recovery depends also on factors influencing demand. Nor can we look for uninterrupted progress. Setbacks are inevitable. Still less can we expect an unbroken advance, a gain embracing all farm products equally and simultaneously. Each product has problems peculiar to itself as well as problems common to the entire list of agricultural commodities. Some commodities have to stand the full force of world competition; others have to meet only domestic competition. The acreage of some crops can be readjusted quickly; whereas the acreage of others, as for example orchard crops, tends to remain relatively constant for long periods. Certain crops, such as cotton, can be cut down without stimulating directly competing farm production. It is different with beef cattle or hogs.

Agricultural recovery involves adjustments internal as well as external. It necessitates shifts in the relationship of one crop to another in addition to a reduction in the total farm output. The job requires not merely a few big moves but many small ones. It calls for tactics as well as strategy, and its various stages will show up in constantly shifting price relationships. So that farmers may know how the battle is going and may see what its shifting positions oblige them to do, they should have maps; that is to say, price charts indicating for farm commodities as a group, and for important products separately, how actual price trends compare with parity prices. This article includes a number of such charts with explanatory text. It records some of the results attained in 1933 and in the early months of 1934.

Agricultural Adjustments Required by Law

Under the Agricultural Adjustment Act, Congress required the United States Department of Agriculture to do certain things calculated to increase the purchasing power of farm commodities. Specifically, it directed the Department to get the cooperation of farmers in crop adjustments and to enter into marketing agreements with producers, processors, and distributors of agricultural products with the object of eliminating certain competitive wastes, improving trade practices, moving surpluses into consumption, and raising farm-commodity prices. This agricultural-recovery legislation was part of a comprehensive measure which provided also for farm-mortgage relief and for the raising of prices through monetary action. In its application to agriculture the measure contemplated substituting planning for blind competition as the controlling factor in prices.

In ordinary circumstances it is not incorrect to say that the cure for low prices is low prices. This idea is one expression of the old laissez-faire doctrine, which assumes that low prices eventually correct themselves by curtailing production. Normally, low prices do cause needed readjustments in production, particularly if the price difficulty involves only a few commodities. Farmers then turn to other products until shortages improve the market for the depressed commodities. Low prices have not this self-correcting property when the declines are universal and excessive. General price depressions, on the contrary, may actually stimulate farm production by forcing individual producers to offset by volume what they lose on unit prices. Low prices then tend to be self-perpetuating rather than self-correcting.

Prices, moreover, do not depend exclusively on the relation between production and consumption. They respond greatly to monetary influences and to the expansion or contraction of credit. Maladjustments in production explain only part of the price declines that occurred from 1929 to 1933. Farm commodities in March 1933 had only half their pre-war purchasing power because world finance as well as world production was disordered. It would have been wholly unpractical to expect a complete remedy from production adjustments alone. Congress provided accordingly for monetary and credit action as well. It set up a definite goal of price improvement and launched a series of complementary recovery policies. In the short period that has elapsed since the enactment of recovery legislation prices have risen substantially; nevertheless, the goal is still distant. This article indicates what has been accomplished and what still remains to be done.

Division of Responsibility

The United States Department of Agriculture administers only one part of the agricultural-recovery legislation. Mortgage relief is the task of the Federal Farm Credit Administration and monetary policy is the President's responsibility. Obviously, the price gains recorded herein cannot be attributed exclusively to the crop-adjustment programs and marketing agreements sponsored by this Department. They reflect also improvement in consumer buying power, and in the case of international commodities such as wheat, cotton, and wool, they reflect the influence of our new monetary policy. It will be long before the specific influence of the separate recovery factors can be measured separately. Undoubtedly, however, the production adjustments promoted by the Department will have a powerful influence. Moreover, production is a controllable factor in which each farmer has a keen individual interest. The charts and accompanying text, therefore, emphasize the production aspects of the price-recovery problem, without suggesting that these are the only factors.

In title I of the agricultural legislation, Congress declared it is necessary "to establish such a balance between the production and the consumption of agricultural commodities as will restore the purchasing power of farm products to the level of the base period." It adopted as the base period the pre-war years, August 1909 to July 1914, for all the commodities named in the act except tobacco. For tobacco, Congress fixed the post-war period, August 1919 to July 1929, as the base period. In this declaration the act defined the goal. The charts here given show the difference between current prices of various commodities and the prices that would be necessary to give farm products the desired purchasing power.

The Basis of Parity

The basic commodities for which the Agricultural Adjustment Act (of May 1933) seeks to establish the pre-war level of purchasing power are wheat, cotton, corn, hogs, rice, milk, and milk products. It aims generally, except in the case of tobacco, at the same goal for other farm products.

In taking the pre-war years as the basis for reckoning parity, those who sponsored the act undoubtedly had in mind the fact that the situation then, besides being reasonably favorable to agriculture, had signs of stability. It was the result of a long evolution, in which the important price-making forces had struck a balance. The post-war trend of prices, in which farm products lost purchasing power heavily, clearly betokened maladjustment. It was logical to aim at restoring the price relationships that had prevailed when conditions were satisfactory. Congress chose a post-war base for tobacco because recent changes in the demand for different types of that commodity, and also in tobacco production, made pre-war parity unsuitable as a purchasing-power yardstick.

In the several charts given herewith, the curve representing parity prices is identical, by definition, with the curve representing the prices of the commodities that farmers buy in exchange for their farm products. Before the war a given quantity of farm products would exchange for a given quantity of other goods. The Agricultural Adjustment Act aims to make the same exchange possible again. Curiously, in the early months of 1933, or just prior to the enactment of the law, the prices of the things that farmers buy had dropped to about what they had been before the war. Prices of the things that farmers sell, however, were about 50 percent lower. In other words, a 100-percent increase in the prices of farm goods, assuming no change in the prices of nonfarm goods, would have been necessary at that time to restore the pre-war parity for farm commodities as a group.

Certain farm commodities last spring were below the general average. Wheat, for example, had an average farm price in March of only 34.5 cents a bushel, as compared with a pre-war average of 88.4 cents. An increase to the latter figure, with no change in the prices of the things farmers buy, would have restored wheat to parity. Wheat rose during the summer; but so did prices generally. In consequence, a disparity persisted between the prices of wheat and the prices of nonagricultural goods, though the spread was somewhat reduced. Other commodities responded, as the charts show, in different ways to the general situation, but most of them had still far to go toward parity as the year ended. Full recovery according to the standard set by the act would bring the curves of actual prices plus benefit payments and the curves of parity prices together. In other words it would remove the disparity between agricultural and nonagricultural prices. That is the ideal. But the curve of prices received by farmers can never synchronize exactly with the curve of prices paid by them. Approximate synchronization is the practical goal.

Agricultural and Nonagricultural Prices

It is impossible to understand the present position of agricultural prices without viewing it against the background of long-time price movements. Since 1800 commodity prices generally, both agricul-

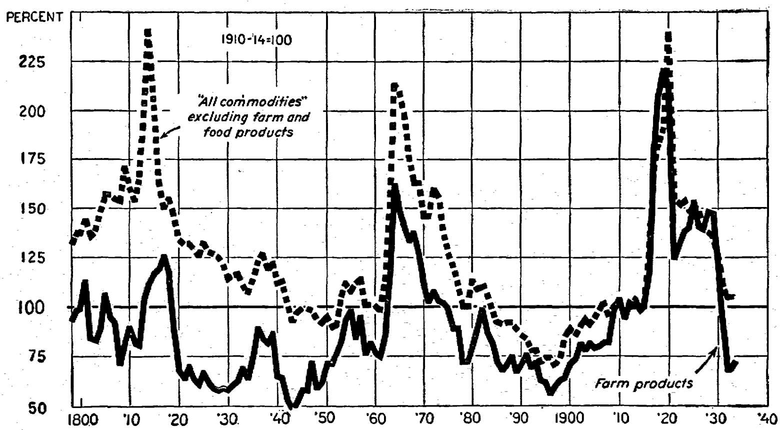

FIGURE 1.—Wholesale-price index numbers of all commodities and of farm products, United States, 1798–1933.

tural and nonagricultural, have been in three profound depressions. One such depression followed the Napoleonic wars, another followed the American Civil War, and the third followed the World War of 1914–18. In each case the depression succeeded tremendous inflation associated with war activities. Figure 1 shows these depressions and also the vitally important relationship of agricultural to nonagricultural prices. In the nineteenth century and during the first decade and a half of the twentieth century, agricultural prices tended generally upward and nonagricultural prices generally downward. This gave agricultural commodities a steadily increasing exchange value or purchasing power. It reflected mainly the fact that we had surpluses of farm commodities and shortages of industrial goods. We exported the former largely and imported the latter. Increasing industrial productivity, a result of science, invention, improved transportation, and the development of mineral resources, brought relatively lower industrial prices. In the World War period, from 1914 to 1919, farm and nonfarm prices rose together, with farm prices slightly higher at the peak. In the two post-war depressions, agricultural prices dropped much more than other prices. This reversed the former uptrend in agricultural purchasing power.

Post-War Price Disparity

There has been a disparity between agricultural and nonagricultural prices since 1920. The disparity has become much wider since 1929. In the economic recovery that followed the first post-war depression of 1920 and 1921, the disparity narrowed. Farm commodities rose in purchasing power during this period because industrial conditions stimulated the demand both at home and abroad, because this country had short grain crops in 1924 and 1925, and because heavy industrial production kept industrial prices from rising. After 1925 agricultural prices ceased to improve in relation to other prices. Among the causes of the change were a decline in the foreign demand for American farm products, an increase in foreign agricultural production, and continued heavy farm production in the United States. Farm purchasing power could not make headway against the combined influence of a restricted foreign demand and an unrestricted United States production. After 1929 nonagricultural prices declined also; but far less sharply than agricultural prices. Hence, the unfavorable disparity between farm

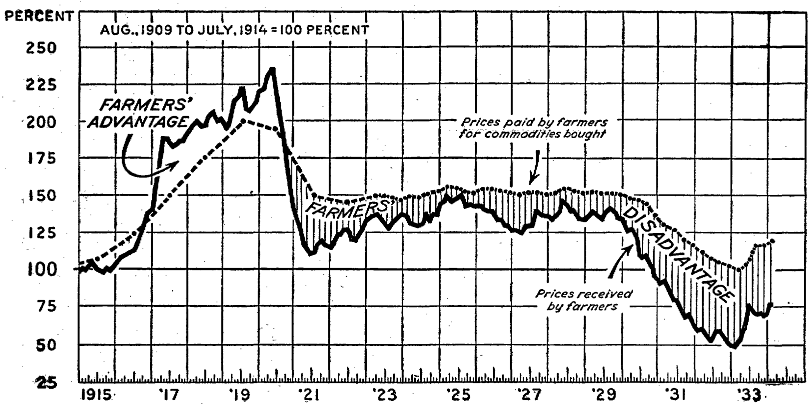

FIGURE 2.—Index of prices received and paid by farmers.

and factory goods increased. At the beginning of 1933 farm commodities had only half their pre-war purchasing power. These remarks apply, of course, to the average of farm commodity prices, which express the net trend of many different products, each reacting differently to the price-making influences. Conditions bearing particularly on the different commodities are illustrated in the charts and explanations that follow.

Consumers' Purchasing Power

Over long periods, prices largely reflect monetary changes. In shorter periods, the purchasing power of consumers is a dominant influence. Consumer buying power naturally declines during depressions, and the demand for commodities falls. In the United States the money income of consumers other than farmers dropped about 50 percent from the middle of 1929 to the spring of 1932. Earnings of industrial workers such as factory and railroad employees and men engaged in mining and construction fell nearly 70 percent. Unemployment was the chief cause of the decline; reduced wage rates contributed. This change in consumer buying power affected agricultural prices more than nonagricultural prices because stocks of farm commodities accumulated while stocks of nonagricultural goods, generally speaking, did not. Farms continued to produce, whereas factories closed down. Depressions cause a surplus of goods in agriculture and a surplus of labor in industry. It takes longer to readjust farm production than factory production, and a price disparity against argiculture is a natural consequence.

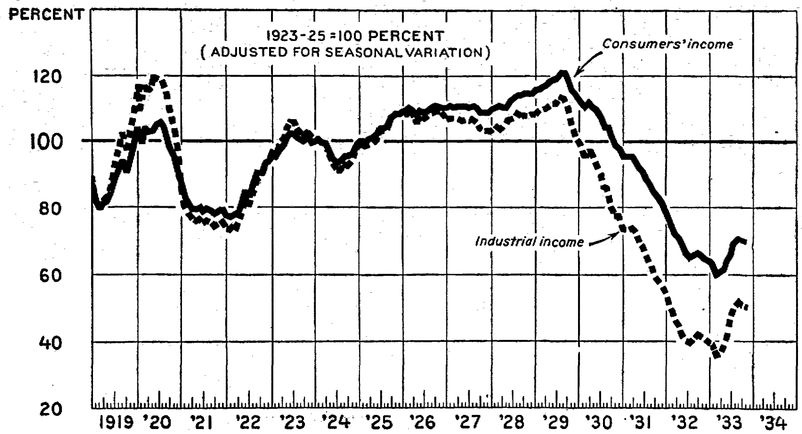

FIGURE 3.—Income of industrial workers and urban consumers, 1919–33

Post-War Boom and Collapse

In sharp contrast with the relatively stable course of agricultural income in the United States from 1924 to 1929 was the speculative and industrial boom. This boom, however, was not marked by sharply rising commodity prices. On the contrary, the price level, after a decline in 1920, remained relatively stable until 1929. Industries expanded their production, and the increased output at stable prices brought increased profits and supported tremendous speculation in securities. The boom derived impetus from an inflow of gold and from domestic credit expansion at declining rates of interest. As is well known, it came to an end in 1929. Among the factors prominent in the collapse were: Uncoordinated and unbalanced expansion in certain branches of industry; extreme maldistribution of the national income between city and country areas; a much greater percentage increase in profits than in wage payments; increased competition in foreign markets, especially in agricultural products; the efforts of many countries to put their currencies back on the gold standard; and in 1929 a sharp decline in loans by the United States to foreign countries. Improvement during the summer of 1933 followed the enactment of the Agricultural Adjustment Act and the Industrial Recovery Act, and the inauguration of a new monetary policy. A recession during the second half of the year promised to be only temporary. There were evidences of continued revival, with indications that agriculture would share it.

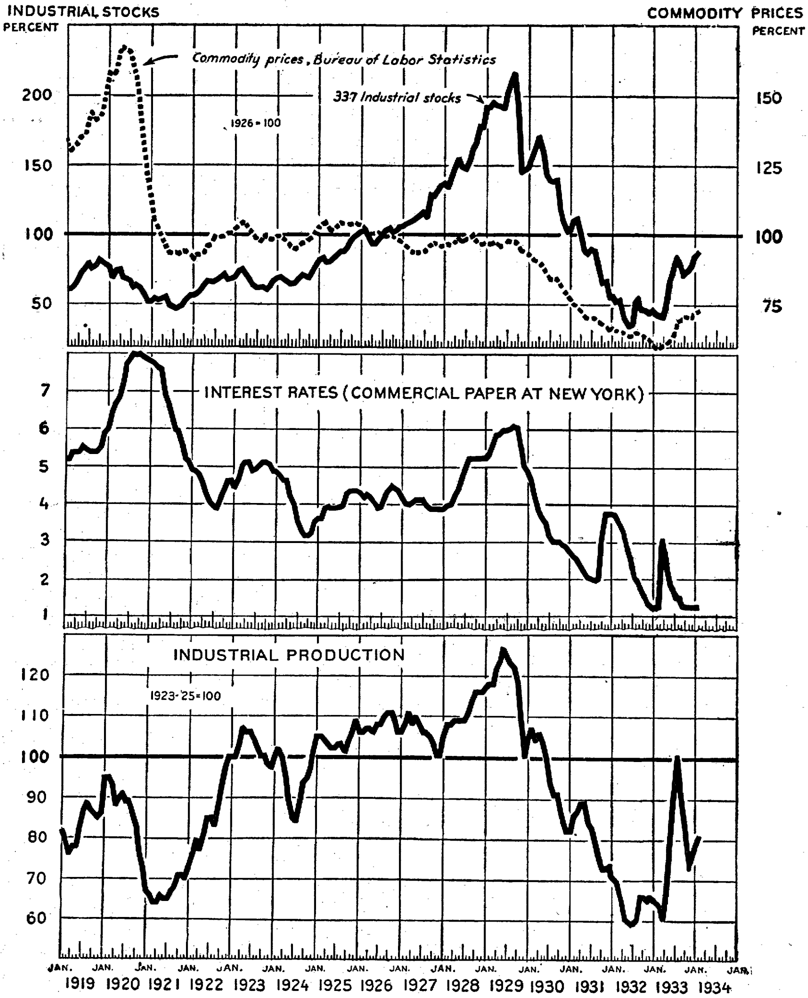

FIGURE 4.—Indexes of prices of industrial stocks and commodities, interest rates, and industrial production.

Interdependence of Farms and Factories

Farm incomes stand in a close relationship to factory pay rolls in the United States. This is evident, from figure 5, for quite short periods as well as over relatively long terms. During 1933, for example, the cash incomes of dairymen and poultrymen rose with factory pay rolls, after having fallen with factory pay rolls in 1931 and 1932. In commodities such as cotton and grains that depend more on international price conditions the correlation is less close. Farm commodities taken as a group vary quite closely with factory pay rolls. Practically everything produced on the farm enters the industrial world as raw material for food and clothing industries, as material for transport by railroad or steamship, or as the basis for various services. Industries using agricultural raw materials handle more than 41 percent of the materials consumed in manufacturing in this country. The interdependence of farms and factories is permanent and practically unvarying. Farm recovery requires as a principal element an increase in the buying power of consumers.

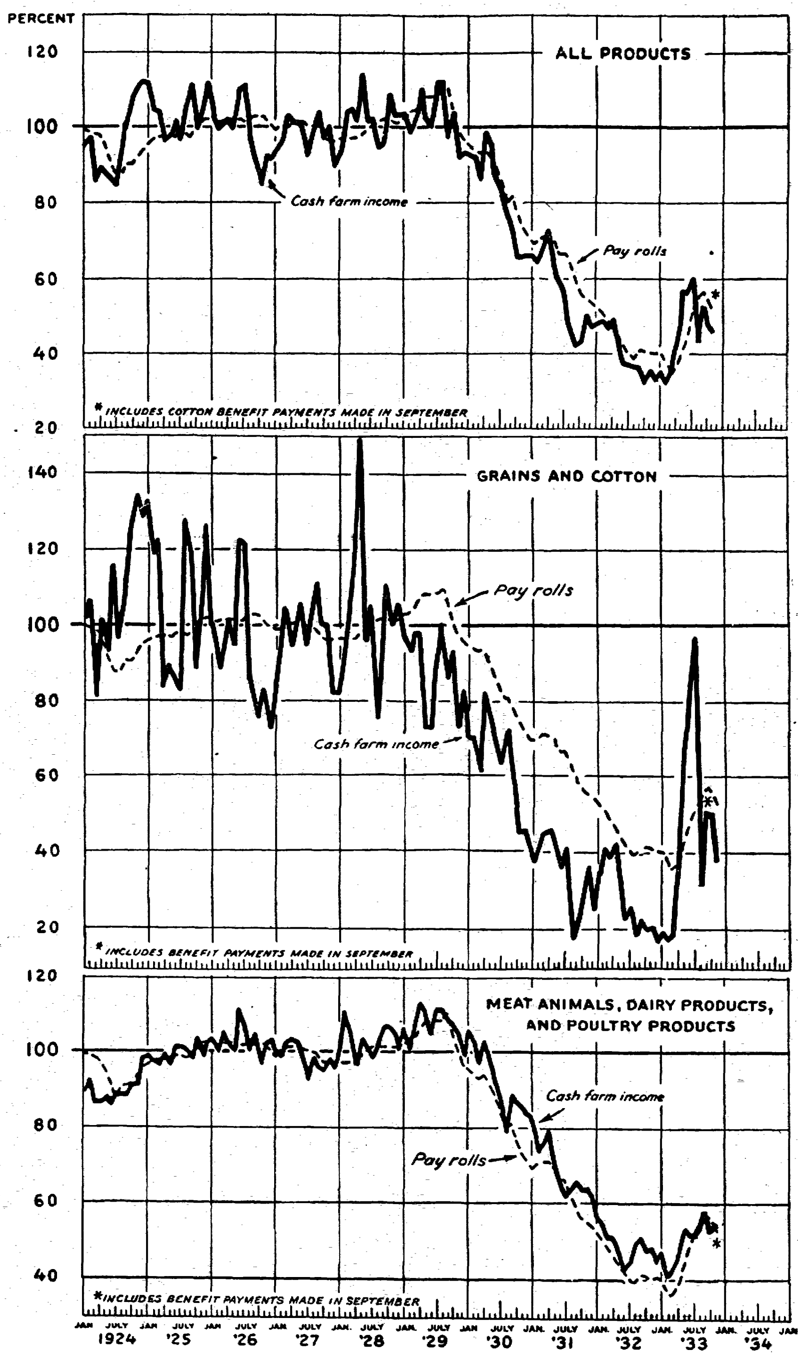

FIGURE 5.—Factory pay rolls and cash income from farm products (adjusted for seasonal variation, 1924–29=100).

Speculative Commodities

Basic commodities that move in world trade have responded more strongly to the administration's monetary policy since April 1933 than have commodities sold mainly in the domestic market. In May, June, and early July, expectations of inflation caused a flight from the dollar, accompanied by great speculation in commodities. In the domestic

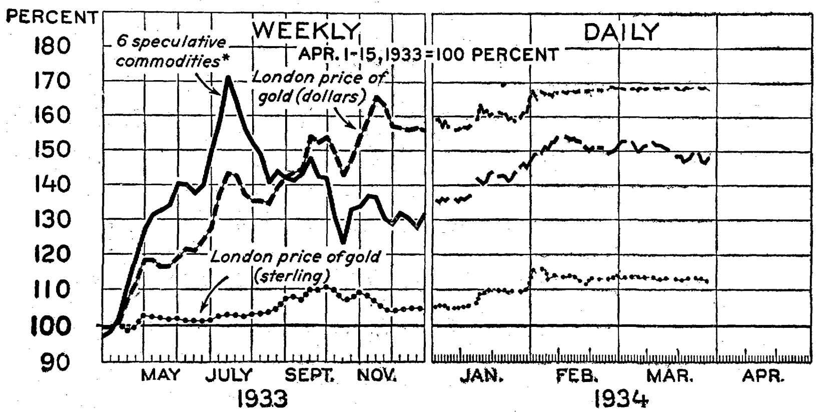

FIGURE 6.—Prices of six speculative commodities in the United States and the price of gold in dollars and in sterling April 1933 to March 1934. Index of near-futures prices of wheat, cotton, cottonseed oil, and sugar, and cash price of copper. The price of gold here used is the open-market price in London. The lower line shows changes in gold value of the pound sterling since suspension of gold payments in the United States.

markets the demand for these speculative commodities exceeded the demand for currency. In the foreign markets the depreciation of American currency gave it an added purchasing power for American products. In consequence largely of the initial speculative activity, the United States currency prices of the commodities covered in the chart rose far above their gold equivalents of April 1933. Subsequently, these prices declined below their gold equivalents. The gold-purchase policy adopted by the Government in October preceded a cut of 40 percent in the quantity of gold in the dollar. It will undoubtedly have more effect for some time on grain and cotton and other commodities largely exported than on livestock and dairy prices, which depend primarily on domestic purchasing power. Eventually, however, most of our raw-material prices should share directly or indirectly the effect of reducing the quantity of gold in the dollar. It is well to bear in mind the probability that the favorable influence of our monetary policy on the prices of cotton and wheat and other international commodities may not continue if foreign countries reduce the weight of gold behind their currencies as we do.

Cotton

Cotton prices in the United States declined from about 78 percent below the parity level in the fall of 1930 to about 38 percent below that level in the summer of 1932. Then came a temporary, partial recovery followed by another decline to about 45 percent below the parity level in the early part of 1933. There was a marked recovery up to July 1933, then a reaction until September, when the market turned hesitantly upward again. In September the Commodity Credit Corporation was organized to loan farmers 10 cents per pound on unmarketed cotton for participation in the 1934 acreage-reduction campaign.

Outstanding among the causes of cotton's terrific slump in 1931 and 1932 was a huge cotton surplus that arose out of the world-wide curtailment in consumption and the large 1931 crop. At the beginning of the 1932–33 season the world carry-over of American cotton was about 13,000,000 bales—approximately two and a half times the normal carry-over. By the beginning of the 1933–34 season the world carry-over of American cotton had been reduced to about 11,600,000 bales, and because of the removal of 10,400,000 acres from the 1933 harvest the supply for the 1933–34 season was 24,700,000 bales. While this supply was 1,300,000 bales less than that of the previous season it was the third largest in history. Without the adjustment program, the year's crop would probably have been the second largest thus far produced and the supply about 3,000,000 bales larger than that of any other year in history.

With the 1933–34 supplies of foreign cotton larger, the world supply of all cotton is the largest in history despite the smaller supplies of

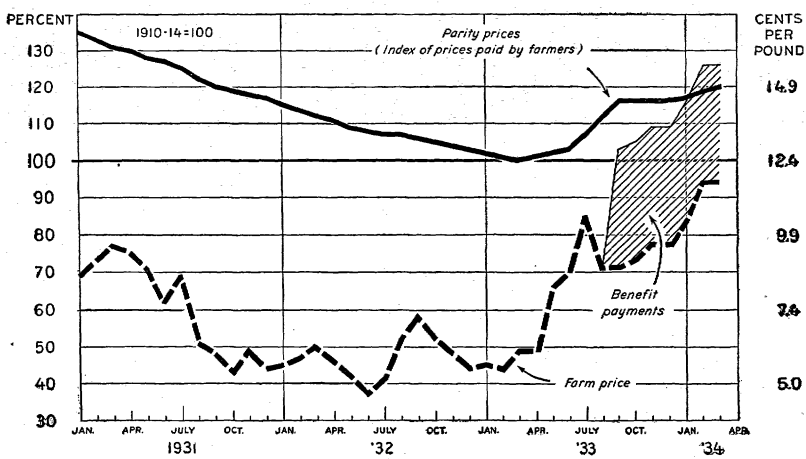

FIGURE 7.—Farm and parity prices of cotton, and benefit payments.

American. Had this country not cut down its acreage the world supply of all cotton would have been by far the largest on record. Hence, the price recovery that took place in 1933 resulted only to a very moderate degree from an improved supply situation. Mainly it reflected the Federal Government's monetary policy, the speculation connected therewith, and the general economic improvement which occurred. Lasting recovery in cotton prices awaits substantial crop adjustments. The rental benefit payments on the 1933 crop together with the value of options, amounted to about 4 cents per pound on the production of those who participated. This amount added to the current farm price came close to giving the participating cotton farmers pre-war parity on the domestically consumed portion of the crop.

Cottonseed

Cottonseed prices declined sharply and almost continuously from 1927–28 to 1931–32. They recovered, and again declined, in 1933, in sympathy with cotton prices and general economic and monetary developments. Cottonseed prices usually tend to vary with cotton prices because the supplies of the two commodities naturally go together. There are, however, important differences in demand and variations in the supply of competing commodities. Consequently, prices of cotton and cottonseed do not always move together.

Prices obtainable for cottonseed oil, and for other cottonseed products, depend materially on the supply of competing commodities, such as lard and various vegetable oils. Large supplies of cottonseed accumulated in the crushing mills in 1931–32, and 1932–33, and stocks of cottonseed oil increased markedly. Stocks of other vegetable oils were large, and in the first half of 1932 stocks of lard began accumulating. In consequence, the average price of prime summer yellow cottonseed oil in New York in May 1932 was only 46 percent of the pre-war average.

In the spring and summer of 1933 a strong speculative demand for cottonseed, cottonseed oil, and competing commodities produced a

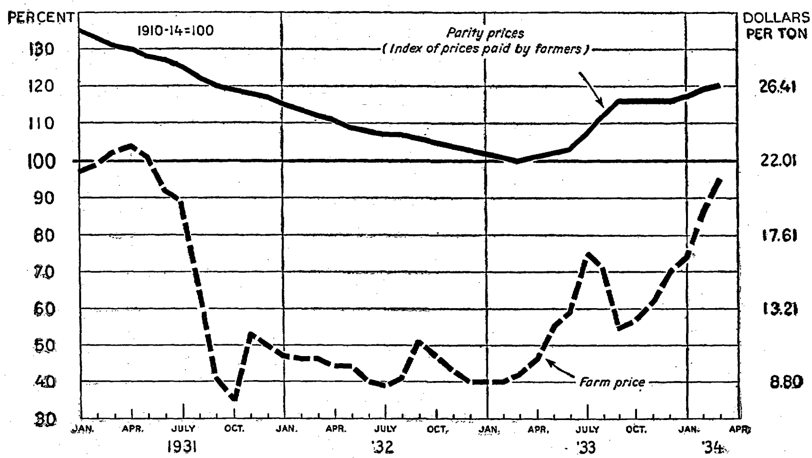

FIGURE 8.—Farm and parity prices of cottonseed.

sharp advance in the cottonseed and cottonseed-oil markets, but a renewed decline in the fall carried them back about to the average of 1932–33. Stocks of cottonseed at mills at the beginning of the 1933–34 season, though 26 percent smaller than a year earlier, were still five times as large as the average of the previous 5 years. On September 1, 1933, storage stocks of lard, the chief competitor of cottonseed oil, were at a record level.

The trend in consumer incomes and demand, as well as the supply of cottonseed, cottonseed products, and competing commodities, will greatly affect the effort to restore cottonseed prices to parity. The planned heavy reduction in cotton acreage in 1934 and the Federal emergency hog-production-control plan should strengthen the situation materially.

Wheat

In 1931 the farm price of wheat fell to 35 cents per bushel or to less than 30 percent of the parity price. The cause, in the most general sense, was of course the depression, with the decline in prices in general, and the curtailment in international trade, which reduced the purchasing power of consumers everywhere and caused wheat stocks to pile up. But wheat prices reflected certain special conditions also. Wheat production throughout the world shifted greatly during the war. After the war the countries which had increased acreage were not inclined to return to the pre-war level, while the European countries whose production had fallen off during the war made strenuous efforts to increase it. Exporting countries with large supplies encountered severe restrictions on the importation and use of wheat by European countries.

The low price of wheat, which might have been expected to make for a reduced world wheat acreage, did not have that effect immediately. World wheat acreage outside Russia and China reached the peak level in 1932–33, and has not since declined significantly. Acreage has declined somewhat during the last 4 years in the exporting countries, but has risen in the importing countries. World wheat acreage

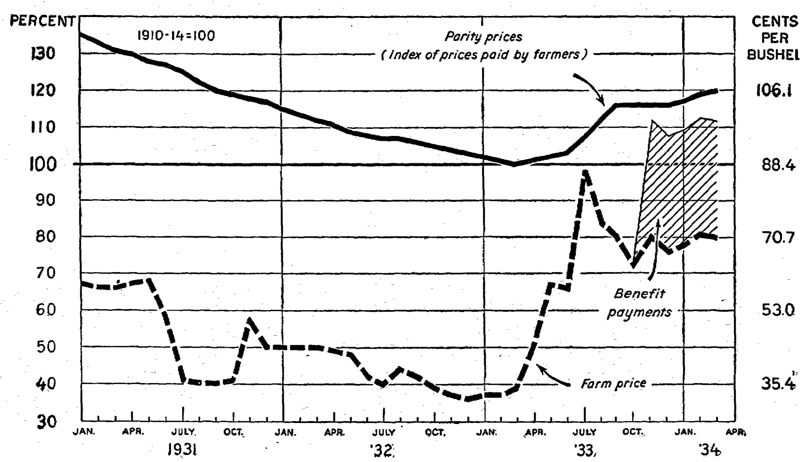

FIGURE 9.—Farm and parity prices of wheat, and benefit payments.

reached a peak at 263,900,000 acres in 1932–33, and dropped only to 263,300,000 in 1933–34.

The world wheat market continues to be depressed by accumulated stocks, a high level of production, and restrictions on international trade. Nevertheless, wheat prices in the United States are nearer to parity than the existing supply-and-demand situation would normally permit. They rose above export basis in 1933 because the United States crop was extremely small, because the Federal Government launched an acreage-reduction program and aided exporting in the Pacific Northwest, and because the American dollar depreciated in terms of foreign exchange. Benefit payments of 28 cents per bushel, the first installment of which was made in November–December, gave participating farmers practically parity prices on the domestically consumed portion of the crop.

Corn

From a level of about 90 cents per bushel in the autumn of 1930, when the crop was very short, the average farm price of corn fell rapidly to 19 cents in December 1932. In September 1930, when selling at 92 cents per bushel, it was just about equal to parity, while in December 1932 corn was selling for only 28 percent of the parity price. Prices were so low in 1932 that in many areas corn sold in the cash markets hardly paid the cost of marketing. Fed to livestock, however, it generally gave a better return.

Following March 1933, corn prices rose very rapidly, reaching a peak in July. In some localities the July level of prices was 300 to 400 percent higher than the low point. The sharp rise, however, stimulated heavy selling of corn in the cash markets, and market supplies reached record levels. As a result partly of the increased market supplies and partly because of a speculative reaction from the very rapid advance, prices declined, and in October they were about 30 percent below the July peak.

In considering the returns to corn growers, the prices of livestock must always be taken into account because most corn growers feed their grain to livestock instead of selling it. Another important consideration is the opportunity corn producers in a number of States have of securing loans from the Commodity Credit Corporation of 45 cents

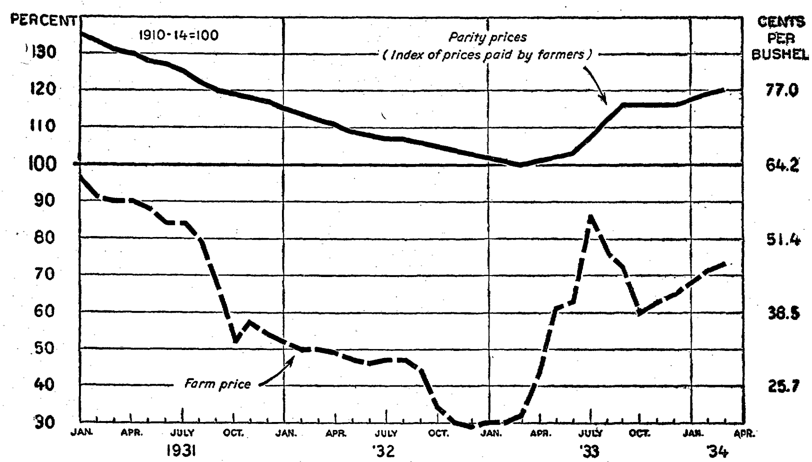

FIGURE 10.—Farm and parity prices of corn.

per bushel at country points. The Agricultural Adjustment Administration is helping increase returns to corn growers through both corn-acreage reduction and reductions in hog numbers. It is to be expected that while livestock prices had not been improved by the end of 1933, they will eventually be benefited both because of the direct effect of reducing hog numbers and because the relatively higher corn prices will tend to reduce livestock production.

Hay

The July, August, and September 1933 prices for the hay crop averaged about 12 percent higher than the prices paid in the same period of 1932. Meantime, feed-grain prices were approximately 54 percent higher. The 1933 hay crop, though a short crop, was not reduced relatively as much as the feed grains. The production of both tame hay and wild hay was 9.2 percent below the 1926–30 average. With the carry-over on farms May 1, however, the hay crop exceeded the annual disappearance of hay during the last 4 years, and seemed sufficient to meet the requirements of a slightly increased number of hay-consuming livestock. In most of the Cotton Belt, which until recent years purchased a large proportion of its hay from distant points, the supplies were ample for local needs.

Regulations under the Agricultural Adjustment Act for reducing the acreage in cotton, wheat, corn, and tobacco permit farmers to grow erosion-preventing and soil-improving crops. It is not yet possible

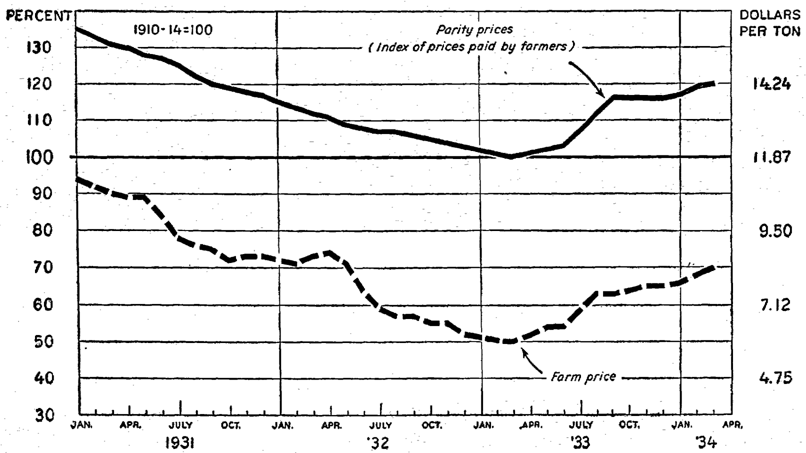

FIGURE 11.—Farm and parity prices of hay.

to estimate how this policy will affect the hay and pasture situation. It seems likely to result in an increased acreage of both hay and pasture, particularly the latter. Probably hay will not advance in price relatively as much as will certain other crops. This does not necessarily mean that hay and pasture will be unprofitable. Land in pasture produces usually less than half as much total feed per acre as land seeded to cultivated crops. But the lower production may result in greater returns per acre because pasture requires less labor.

Oats

Our production of oats in 1933 was less than 60 percent of the 1926–30 average production, and was the smallest crop since 1894. This decline, together with monetary and other developments, caused oat prices to climb sharply. In July 1933 they came near to the parity level but declined thereafter to about 40 percent below that level. The resulting net gain, however, was a considerable improvement over the situation that prevailed during 1931 and 1932.

In February 1933 oats had a little less than 33 percent of their prewar buying power. This was a result mainly of the depression but also of a declining need for oats as a feed for work animals. Mechanization in agriculture and the replacement of horses by engine power in city transport tremendously restricted the market outlet for oats, which, nevertheless, retained an important place in agricultural rotations.

The oat price gain of 1933, a result partly of short-feed conditions and partly of recovery forces set in motion by the National Government, does not necessarily indicate a prospect of permanent recovery. Normal weather conditions and an acreage of oats equal to that of recent years would undoubtedly bring lower prices again. Commercial utilization of oats is not an important factor. The resumption of brewing and distilling will not greatly increase the total consumption of oats.

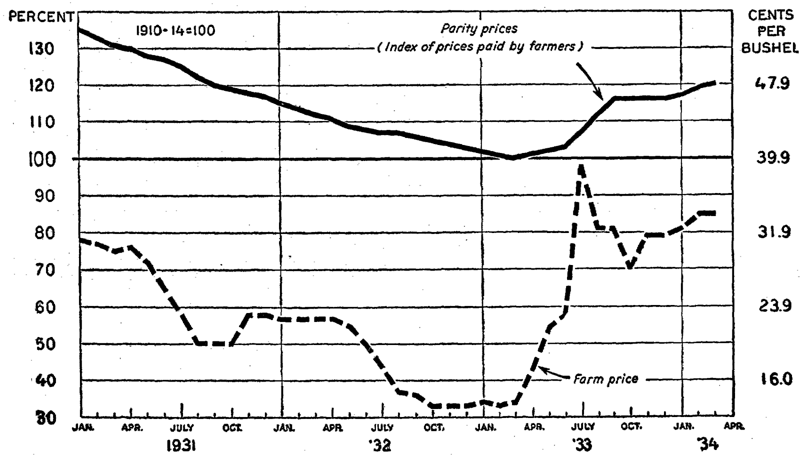

FIGURE 12.—Farm and parity prices of oats.

The total supply of feed grains for the 1933–34 season is smaller than that for any other year since 1901. Oat prices will, of course, benefit from the Government's program for reducing the production of corn.

Flaxseed

Flaxseed prices rose temporarily above the parity level in July 1933 and have since then retained most of that gain. The sharp advance from about 50 percent of parity at the end of 1932 to near parity levels was due largely to monetary changes and prospects of reduced domes-

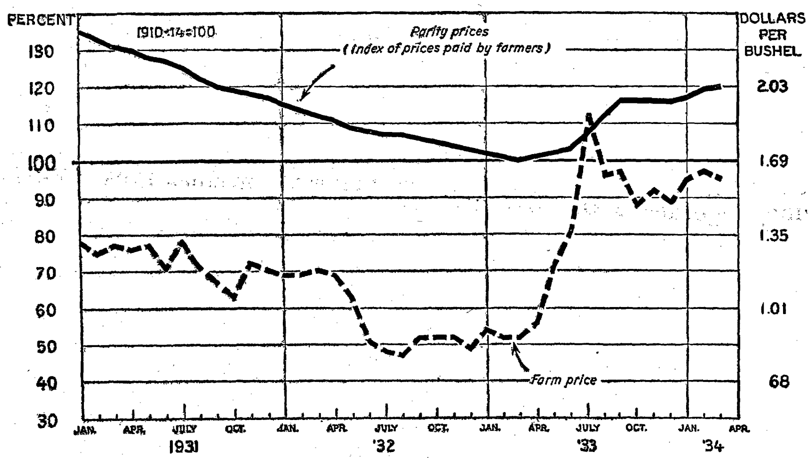

FIGURE 13.—Farm and parity prices of flaxseed.

tic supplies. From 1929 to the spring of 1933, however, the spread between the actual and the parity price of flaxseed ranged from 50 to 60 cents a bushel.

Domestic flaxseed supplies for the 1933–34 season are much below the expected requirements, as a result of record low yields and a reduced acreage. On the other hand, the market demand for flaxseed and flaxseed products seems likely to be somewhat improved. The acreage sown to flaxseed in the United States has declined sharply during the last 3 years, and in 1933 was the smallest since 1922.

It may be necessary to import as much as 13,000,000 bushels of flaxseed to supplement the domestic supply. The United States production in 1933 was the smallest since 1919. World production also was smaller. These circumstances make it probable that flaxseed acreage in the United States will be substantially increased in 1934.

An acreage 50 percent larger than the 1,925,000 acres seeded in 1933, with an average yield per acre, would produce about as much flaxseed as could be disposed of without losing the benefit of the 65-cent-per-bushel tariff. It is not likely that the 1934 crop will exceed domestic requirements.

Hogs

After declining almost steadily since 1930, hog prices reached the lowest level in more than 50 years late in December 1932. This drastic decline was the result of the sharp reduction in consumer incomes and

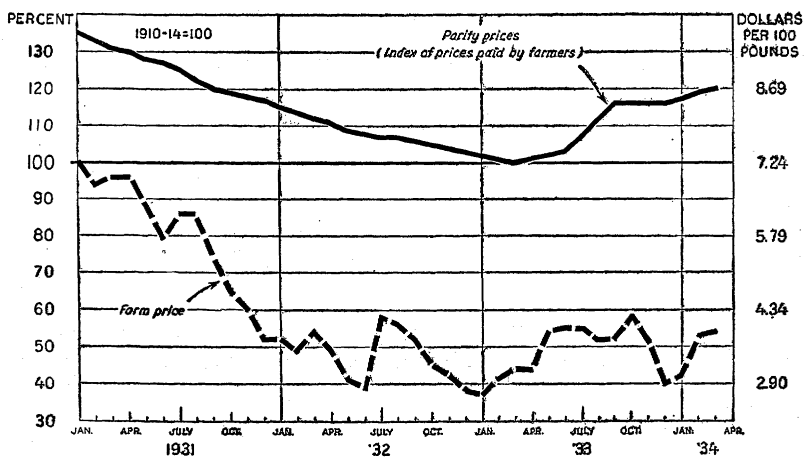

FIGURE 14.—Farm and parity prices of hogs.

the marked curtailment of the export outlet for United States hog products. Exports increased greatly during the World War, and were at a relatively high level in the years immediately following the war. During the last decade European countries restored their hog production, and our export outlet was greatly curtailed. Hog slaughter in the United States is now considerably larger than during the war period, when exports were at their peak. The world-wide depression during the last 4 years greatly reduced the demand for hog products both at home and abroad, and the hog industry is now faced with an obstinate surplus problem.

Hog prices advanced somewhat during the first half of 1933, but since July prices have declined to some extent. The advance was largely a reflection of some improvement in the domestic demand for hog products. Federally inspected slaughter of hogs in the marketing year ended September 30, 1933, was larger than in any other year since 1928–29. The export outlet continued to be sharply restricted. Total exports of hog products in 1932–33, though slightly larger than in the previous year, were about 5 percent smaller than in 1930–31 and much below those of the years from 1920 to 1929. Hog production in Europe has declined during the last 2 years, but restrictions to international trade have prevented this decline from strengthening the foreign outlet for American hog products. A number of factors contributed to the decline in prices between September and December 1933. Ordinarily marketings expand during this period and bring about a seasonal price decline. This year marketings were unusually heavy, induced in part by the relatively higher prices obtainable for corn. Consumer incomes failed to advance after October. The processing tax on hogs of 50 cents a hundred pounds in November and $1 in December in the face of heavy marketings and a temporary check to business activity also contributed temporarily toward lower prices. On February 1 the tax was increased from $1 to $1.50 a hundred pounds. Hog receipts were falling off about that time and purchases for relief distribution were being increased. Prices of hogs advanced during the last half of January and the first week of February 1934.

Commercial slaughter of hogs during the 1933–34 marketing year, which began October 1, 1933, will be considerably smaller than that in the preceding marketing year. This expected reduction will take place largely as a result of noncommercial slaughter of some 6,000,000 pigs in the late summer of 1933 under the Federal emergency hog-production-control plan. Recently the Agricultural Adjustment Administration announced a more permanent plan for hog-production control. This plan provides for a reduction in the number of pigs raised by cooperating farmers of 25 percent from the average production in 1932 and 1933. Such farmers will also agree to reduce their corn acreage by 20 percent. Some reduction in pigs raised during 1934 probably would have occurred in any event, but the reduction contemplated under the production-control program is of much greater proportions.

Widespread cooperation by hog raisers in the Administration's hog-production-control plan will be necessary to raise hog prices to parity. The fair-exchange value or parity price of hogs in October 1933 was more than twice as high as the prices then received. In each of the last 2 marketing years the inspected commercial slaughter of hogs has been about 47,000,000 head. General participation by producers in the hog-control program would reduce this total during 1934–35 to a point lower, it is believed, than that of any other marketing year since 1920–21, when the slaughter was 38,663,000 head. Such a reduction, coupled with improved demand produced by general economic recovery, would probably raise hog prices substantially toward parity. These higher prices with adjustment payments added would give the hog farmers more purchasing power than they have had for several years.

Wholesale Price of Milk

Gross returns from dairying since 1929 have been relatively favorable as compared with returns from most other types of farming. The comparative situation may be less favorable during the next year or two if supplies are maintained in the face of low demand and relatively high feed costs. The number of milk cows on farms has increased continuously, except for seasonal fluctuations, since 1929. Milk production has not increased proportionately, but excess production capacity exists; and, with more liberal feeding, milk production could be increased materially. Stocks of dairy products were at record levels in the fall of 1933, and consumption had declined.

Farm prices of milk at wholesale began to decline in the fall of 1929 and continued to decline until the spring of 1933. True, the down trend started later than the slump in other farm commodities, and was less marked. In 1933 price-supporting measures taken by the Agricultural Adjustment Administration strengthened the dairy-price situation. The basic supply-and-demand position, however, is not favorable. In recovery periods following previous depressions, dairy prices have lagged somewhat. This seems likely to be the case again. Any further considerable rise in milk prices will probably require a distinct rise in the general price level and in consumer buying power, or a noticeable reduction in supplies.

Farm prices of milk at wholesale, as shown in the chart, cover not only milk sold for distribution as fluid milk and ice cream, but milk for condensing, drying, and cheese-making. Some of this milk, indeed, goes into the production of butter, though cream sold from the farm furnishes most of the fat used in buttermaking. Milk for the fluid

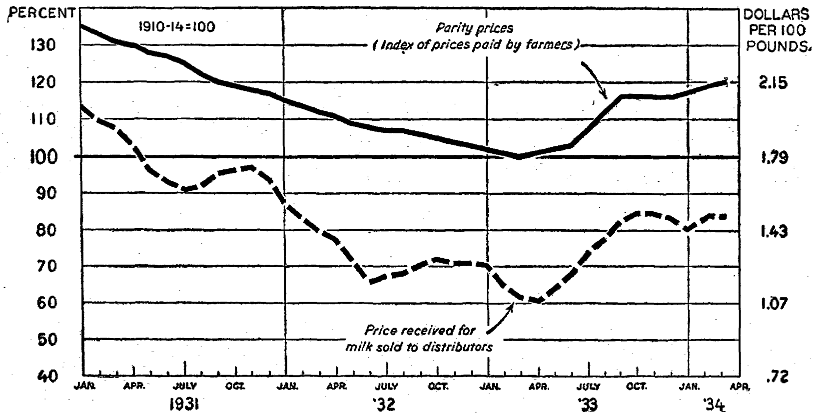

FIGURE 15.—Wholesale and parity prices of milk.

market usually brings higher prices than milk for processed dairy products. Hence, the price trend shown above records a greater spread between the actual and the parity price than would be indicated by a chart covering fluid milk exclusively. The upswing in 1933 reflects the influence of the Government's monetary policy and the resulting increase in business activity and consumer buying power. It shows the effect also of various things done by the Agricultural Adjustment Administration, including the adoption of milk agreements and the removal of quantities of butter from the commercial market.

Retail Price of Milk

Farmers themselves retail annually probably 10,000,000,000 pounds of milk. This is about one seventh of the milk or milk equivalent produced in the United States. The price trend for the fluid milk thus retailed shows a less drastic decline since 1929 than the retail prices of other dairy products, and a less severe decline also than that shown by the price of milk sold by farmers at wholesale. This difference results mainly from two facts: (1) The normal tendency of fluid milk for which the demand is relatively constant, to hold up relatively better than other dairy products during depressions; and (2) the well-known tendency for retail prices to decline less than wholesale prices in the early stages of depressions, because they contain a larger proportion of relatively high distribution costs that do not decline readily.

These circumstances strengthened the farmers' incentive to retail their milk direct. Such retailing has increased substantially in the last few years. It has important consequences. Increased retail selling by independent farmers makes it more difficult for the organized producers to maintain their prices and may eventually oblige distributors to take smaller margins. So far during the present depression, milk retailed from the farm has maintained a more favorable relation to the parity price than other dairy prices. In the recovery of 1933 the spread between the actual and the parity price was slightly narrowed. Whether this favorable position can endure depends, to a considerable extent, on the volume of milk retailed by farmers and on the reaction of organized producers to this competition.

In this connection the distinction between fluid milk retailed by farmers and milk sold by farmers at wholesale is fundamental. The

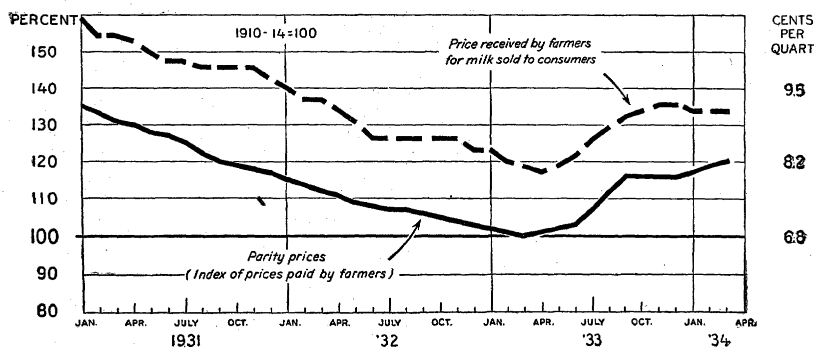

FIGURE 16.—Retail and parity prices of milk.

retailed milk is all for the fluid market. That sold at wholesale is partly for fluid uses and partly for processing into butter and other manufactured products. It does not necessarily follow, because the retail-price curve looks relatively favorable, that the independent farm retailers have been getting a more advantageous price for their class 1 milk than the sellers at wholesale. The farmer-retailers have to include their costs of distribution.

Butter

Up to the winter of 1932–33 returns from butter were relatively favorable. Butter prices slumped severely in the spring of 1933. Even then, the spread between the actual and the parity price was smaller than in the case of many other major farm products. Production continued to increase, however, and a speculative movement provoked a reaction. The result was an unseasonal decline in prices and a widening of the spread between the actual and the parity price.

The Department of Agriculture removed a considerable quantity of butter from the market and arranged for its distribution to the unemployed through the Surplus Relief Corporation. This action merely steadied the market, without materially changing the supply-and-demand situation. Full recovery in butter prices depends essentially on a revival of city buying power.

Cold-storage holdings of creamery butter in December 1933 totaled 138,090,000 pounds—more than 68,000,000 pounds above the average for that month. They included the Government purchases. From March to September the farm price of butterfat increased 29 percent. In the same period, however, the parity price of butter increased through advances in the prices of nonagricultural commodities. In December the farm price of butter averaged 21.7 cents a pound and the parity price 30.2 cents. The disparity was practically as wide as it was at the low point of prices in 1932.

Production trends indicate that butter may not retain even its present not particularly favorable price position. There were 14 percent

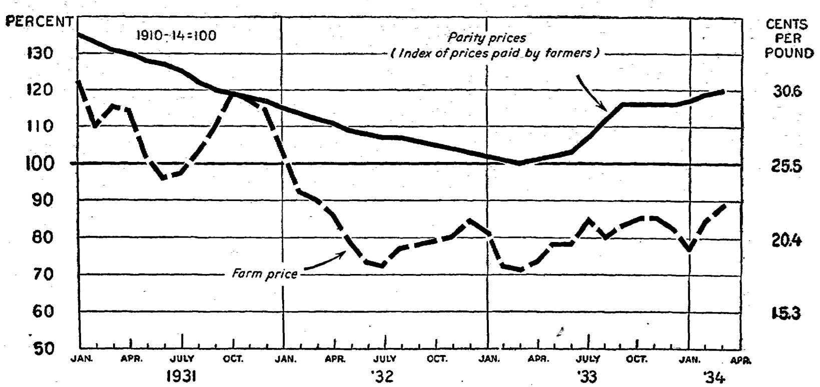

FIGURE 17.—Farm and parity prices of butter.

more milk cows on farms in June 1933 than in June 1928. The increase resulted from various causes, including low feed prices, a large supply of farm labor, and relatively favorable dairy prices. It is probable the turning point in milk-cow numbers will not be reached for about 2 years. Meantime the butter market will be constantly burdened with surpluses.

Production control, though difficult, is an essential part of the recovery process. The number of farms involved is very large. Milk production capacity is increasing, furthermore, because beef prices are very low and beef men are milking more cows and weaning the calves earlier. These difficulties merely emphasize the necessity for action. Satisfactory returns for butter depend on production adjustments and on continued improvement in demand conditions.

Cattle

Cattle prices declined sharply and steadily in 1930, 1931, and 1932 despite the fact that slaughter supplies during that period were relatively small. Prices declined further through 1933 as slaughter increased sharply after April. Cattle numbers at the beginning of 1933 were about 15 percent larger than 5 years earlier. Cattle production has been in the upward phase of the characteristic cycle since 1928. It is probable that increase in numbers will continue at least through 1934 and that slaughter will continue large for several years.

Cattle prices during the first 9 months of 1933 were at the lowest levels in more than 25 years. Cattle producers did not share, to any extent whatever, in the rise of purchasing power enjoyed by other branches of agriculture. For cattle producers the immediate prospect is relatively unfavorable. Cattle feeders next year may do better, since unfinished cattle are selling at extremely low prices—for some kinds the lowest on record—and cattle feeding will be reduced. The present low prices tend to restrict marketings. Working in the opposite direction, however, is the shortage of feed in many areas, and the pressure of debt on many cattlemen.

Supplies of beef for consumption are large at a time when consumer purchasing power is at a very low ebb. Recent months have seen a moderate improvement in the consumer demand for meats. Further improvement depends on a continued increase in consumer buying power. Prospective reduced production of competing meats may

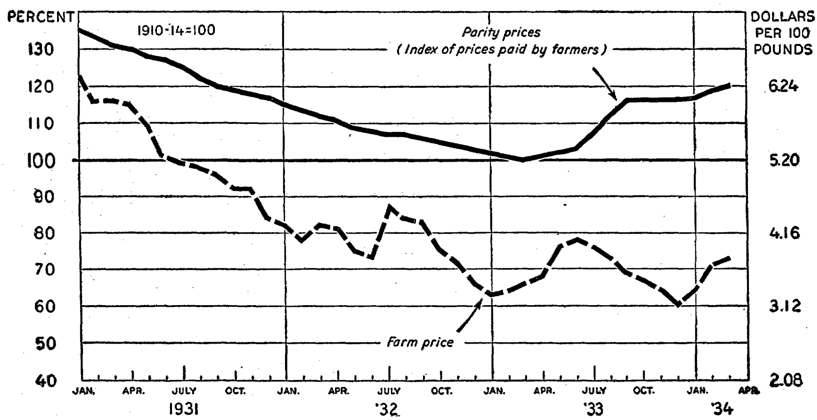

FIGURE 18.—Farm and parity prices of cattle.

strengthen the demand for beef somewhat during 1934, but this will be offset to a considerable extent by the expected increase in slaughter supplies of cattle.

Lambs

The sheep industry of the United States in 1933 was in the second year of the down swing in the present production cycle. Lamb prices in 1933 were somewhat higher than in the previous year, but this price gain for the season was due entirely to the sharp increase in wool prices. Prices of dressed lamb in 1933 were below those of 1932. Further improvement in business conditions will probably advance lamb more than wool prices.

Prior to the depression of 1929, lamb prices were relatively high. Indeed, the sheep industry as a whole enjoyed high prosperity from 1922 to the end of 1929. Its gross returns for 1929 exceeded those of any previous year in its history. In 1930 the trend turned downward, and in 1931 lamb prices fell to the lowest level in many years. Prices of slaughter ewes dropped to the lowest level on record in the fall of 1931. In the first 9 months of 1933 the market improved somewhat. The average price of sheep and lambs slaughtered under Federal inspection during November 1933 was $6.20 a hundred pounds as compared with $5.14 in the corresponding month in 1932.

It is not likely that the present downward trend in sheep numbers will continue long. In previous sheep-production cycles the down trend has varied from 3 to 6 years. This down trend seems likely to be a short one, because the present position of the western sheep industry as regards land ownership, range control, and grazing allotments favors reexpansion, if wool prices continue at or near present levels and weather and feed conditions make this possible. Under such condi-

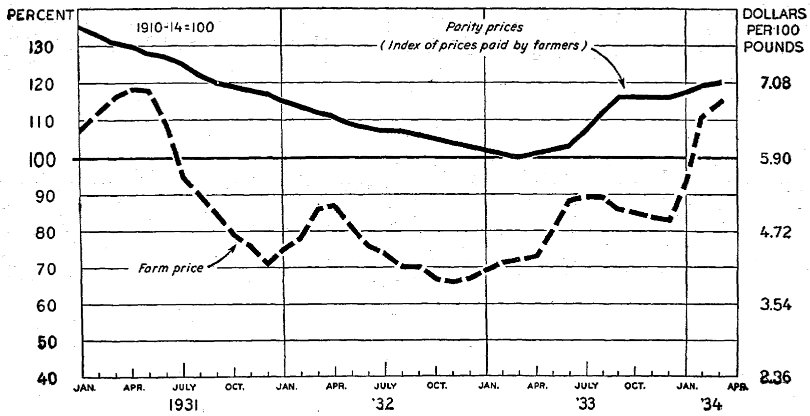

FIGURE 19.—Farm and parity prices of lambs.

tions, numbers would show an increase by the end of 1935. The western sheep industry has had very unfavorable operative conditions for several years. In the natural course these conditions will change, and with them the volume of lamb production.

Wool

Wool prices declined from 1928 to 1932. At the low point in July 1932 the average farm price was only 40 percent of the 1909–14 aver-

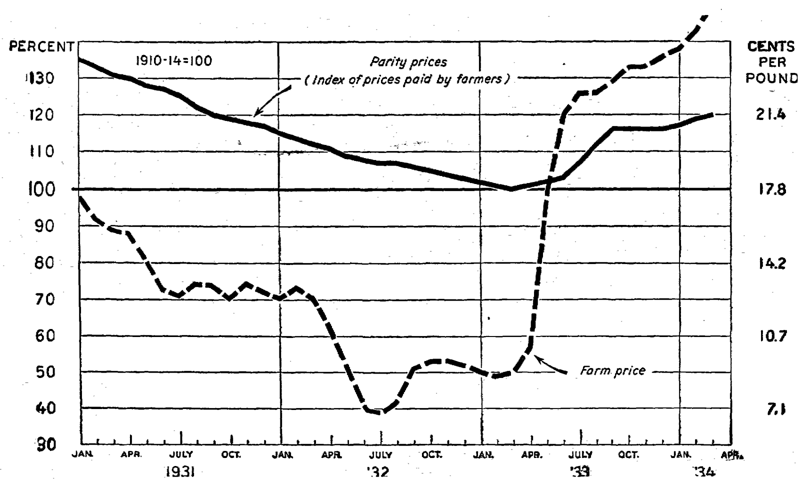

FIGURE 20.—Farm and parity prices of wool.

age. Prices advanced sharply in 1933 to a point well above the prewar price. This recovery reflected a marked increase in domestic manufacturing activity, rapid movement of the domestic clip, and strength in foreign markets due to the depreciation of American exchange in foreign trade, and the prospect of reduced world wool production. Sheep numbers in most of the important wool-producing countries are now declining, following 5 years of expansion. Drought in 1933 in several countries of the Southern Hemisphere foreshadows a further decline. World wool prices, as well as prices in the United States, advanced. The early advance in domestic wool prices, however, was greater than the advance in foreign wool prices in terms of United States currency, and during the third quarter of 1933 the margin of domestic wool prices over foreign wool prices widened sufficiently to permit imports of substantial quantities of most grades of wool.

The consumption of wool by United States mills, after a sharp increase last spring, has been maintained at a relatively high level. However, it will require a substantial increase in consumer incomes to maintain a level of activity in 1934 comparable to that of the last half of 1933. It is significant of the strong position of this commodity, however, that wool prices held up well during the fall of 1933, when prices of other commodities were declining. Since present supplies of domestic wool are reported to be relatively small, a high rate of mill activity during the early months of 1934 would make increased imports necessary. The movement of wool prices in foreign countries and monetary developments in this country and abroad will therefore continue to exert considerable influence upon the trend of domestic wool prices.

Chickens

Unlike the experience of most other farm commodities the relatively high level of farm prices was maintained during the depression years of 1921 and 1922. In the years between 1924 and 1929 the spread between the farm price of chickens and the parity price was increased in

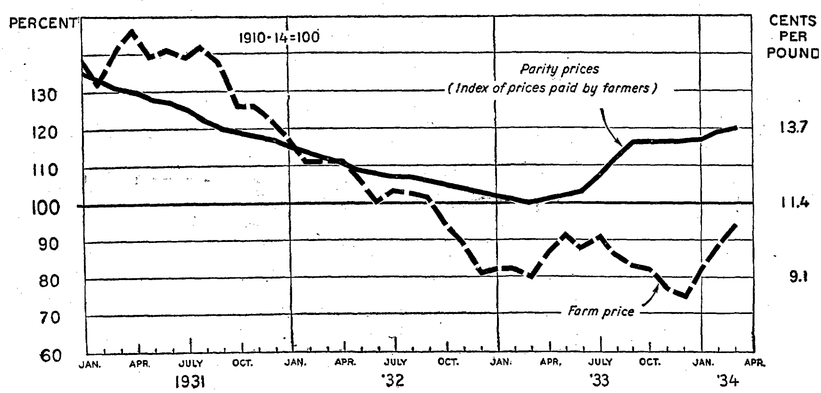

Figure 21.—Farm and parity prices of chickens.

favor of the poultry producer. These were years in which the level of consumer incomes was generally high and resulted in an increased demand for poultry. Following 1929, farm chicken prices declined and fell below parity in February 1932, after which date the disparity between the farm price and the parity price continued to increase. In October 1933 the farm price of chickens was 9.3 cents per pound. This was 3.9 cents, or 29 percent, below parity.

Farm chicken prices failed to respond to generally rising price levels during the spring and summer of 1933 to the same extent as did most other farm commodities, largely because of heavy marketing and large supplies of other meat products in storage.

Storage stocks of dressed poultry on October 1 were slightly above average as a result of heavy marketing during the summer and early fall. By November 1, however, the stocks were less than average for the past 5 years, while receipts at the four principal markets, New York, Chicago, Boston, and Philadelphia, continued heavy, and market prices declined.

Horses and Mules

Horses and mules have been low in price for many years, mainly in consequence, as is well known, of the substitution of mechanical for animal power on farms and in cities. It seems now that the need for work stock may shortly exceed the supply. In fact, there may soon be

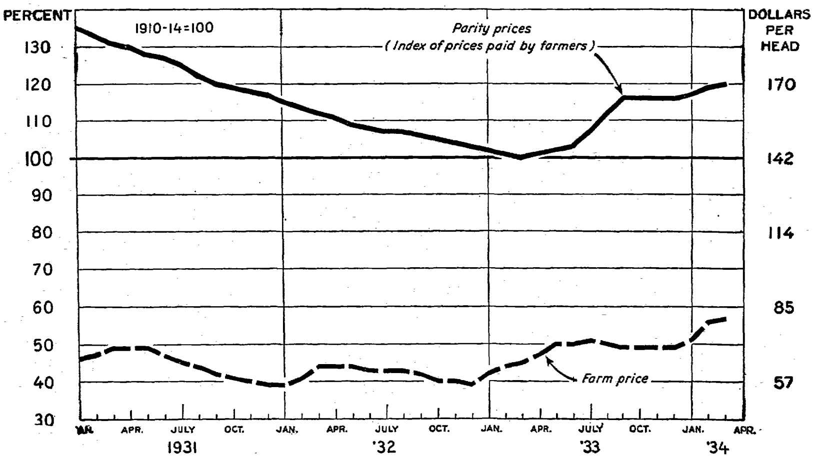

FIGURE 22.—Farm and parity prices of horses.

a serious shortage of work stock. Acreage-reduction programs sponsored by the Federal Government will lessen the farm need for horses and mules, but overbreeding is extremely improbable.

Horses on farms in January 1933 numbered 12,163,000, only 57 percent of the number reported on January 1, 1918. Mules on farms in January 1933 numbered 4,981,000, only 84 percent of the number on farms in 1925. In cities, towns, and elsewhere, the decrease in the numbers of horses and mules has been relatively much greater than on the farms. According to estimates based upon partial returns secured by the census, the number of horses not on farms in 1930 was about 300,000 head, and of mules about 75,000 head. These figures compare with a census estimate of 3,183,000 horses and 270,000 mules not on farms in 1910. Present conditions make tractors, gasoline, and oil relatively high cash-cost means of farm power. Accordingly, many farmers on the small and moderate-sized farms are again depending on horses for their power. In October 1933 the prices of farm horses in some markets were as much as $25 a head higher than in October 1932.

Future requirements for work stock on farms will depend on whether the use of mechanical power increases or decreases and on the acreage in cultivation. Renewed prosperity would make possible an increased use of mechanical power. Under present conditions many farmers cannot buy replacements, repairs, and fuel. On the other hand, substantial contraction of acreage in crops would reduce the need for power and perhaps make it possible for many farmers to operate only with work animals. In any event, however, the outlook for some years is for a short supply of work animals in relation to the demand. Only expanded raising of both horse and mule colts can check the present decline in numbers of these animals and could not prevent a further decrease in animals of working age until some years had elapsed.

Potatoes

Because the demand for potatoes does not change greatly from year to year, small crops consistently return higher gross incomes to farmers than large crops. The crop of 318,000,000 bushels in 1933 was the smallest since the small crop of 1925. Yet growers will get from it a

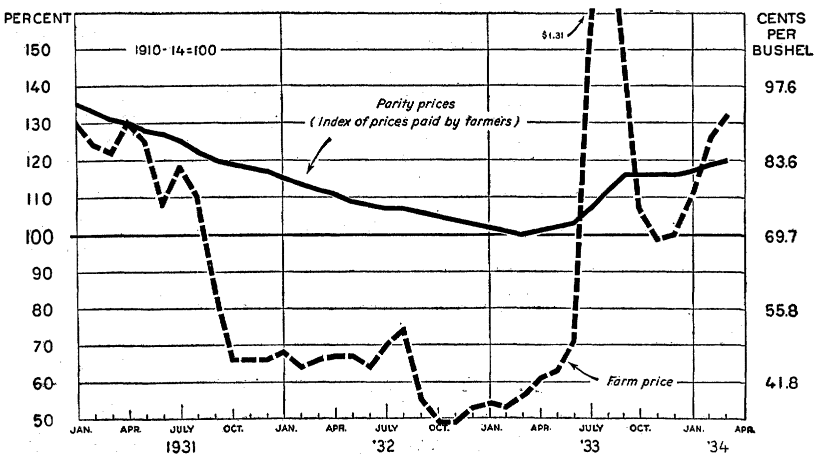

FIGURE 23.—Farm and parity prices of potatoes.

gross income almost three times that which they received from potatoes grown in 1932. The small crop resulted mainly from poor growing conditions. Acreage was not below the average.

It is expected that the high price received for the 1933 crop will cause growers to increase their acreage. Ordinarily about 3,000,000 acres will produce an ample supply of potatoes for human consumption in the United States. Average growing conditions on more than 3,000,000 acres will give a total crop considerably in excess of normal consumption requirements and will return the growers a much smaller gross income than that received for the 1933 crop, but probably somewhat above the low returns of 1931 and 1932.

Potato consumption in the United States has gradually declined during the last 10 years. Good prices received for a short crop, therefore, do not justify substantial increases in the potato acreage. Low prices in 1931 and 1932 caused heavy losses to many growers, particularly in areas distant from markets. In such areas the acreage declined. Growers located fairly close to markets, however, maintained their acreages almost up to the 1931 peak. To maintain their favorable price relationships, potato growers need regional coordination of acreage adjustments and shipments to markets in line with demand conditions.

Sweetpotatoes

Sweetpotato growers received fairly satisfactory prices for their crops in 1933, after 4 years of declining prices. Sweetpotato prices rose in sympathy with the prices of potatoes, the crop of which was extremely short. Nevertheless, prices remained substantially below the predepression level. On November 15, 1933, the farm price of sweetpotatoes averaged 56.4 cents a bushel as compared with 37.7 cents in November 1932, and 93.8 cents a bushel in November 1930. Acreage devoted to sweetpotatoes varies sharply in accordance with the price received for the last crop. In 1932 growers got unusually low prices. Hence, the acreage of sweetpotatoes in 1933 was 12 percent below that of 1932. In the South Central States the decreases in acreage averaged

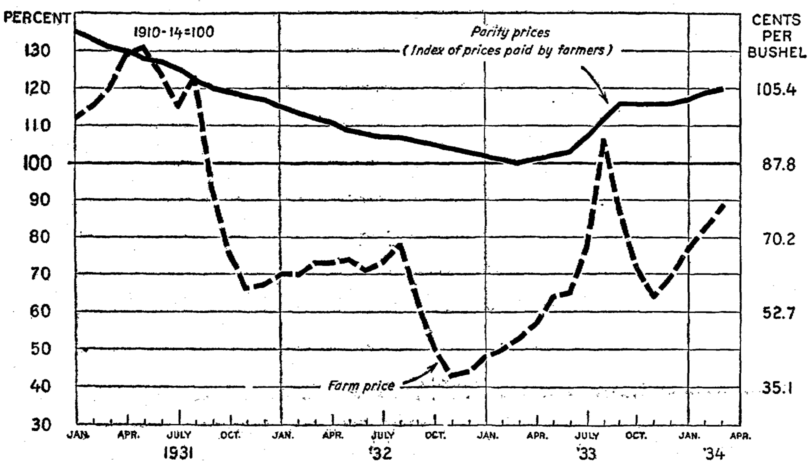

FIGURE 24.—Farm and parity prices of sweetpotatoes.

16 percent. The United States production in 1933 amounted to about 70,000,000 bushels.

An increased acreage of sweetpotatoes will probably result from the price gains of 1933, particularly where the crop is grown for the market. The acreage is likely to be somewhat larger also where sweetpotatoes are grown largely as a farm food crop. In the case of a crop subject to such large annual changes in the acreage, the trend over a period of years rather than the price in any one season should be taken as the measure of its profitableness. Prior to the depression sweetpotato production gave relatively good returns.

Beans (dry, edible)

The average farm price of beans in the United States followed the downward trend of agricultural commodities from 1929 to the early part of 1933. It rose sharply and steadily in 1933, and by August had almost attained the parity level. This was a recovery from the lowest point on record. From September 1931 to March 1933, bean prices were relatively lower than farm-commodity prices generally. The trade disappearance of dry beans during the 1932 crop marketing season was about a million bags less than the average disappearance for the preceding 5 years.

Unless consumption improves, any increase in general acreage, with average yields, would result in an increased surplus. Our production of beans in 1933 was 11,639,000 bags, judging by crop conditions on

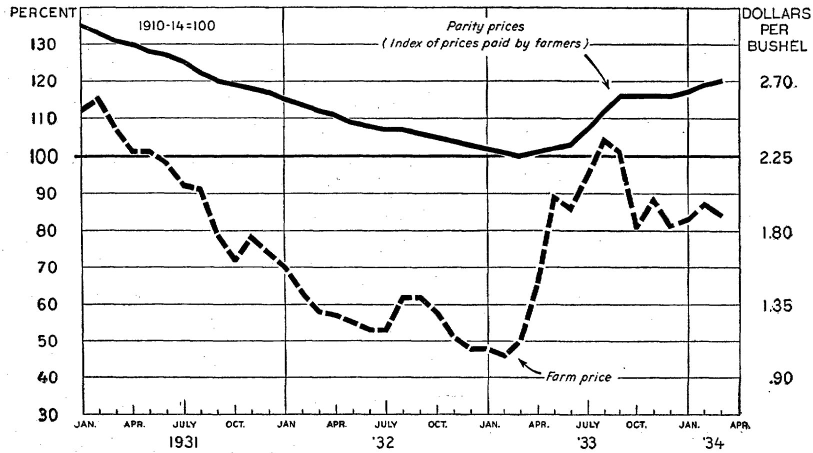

FIGURE 25.—Farm and parity prices of beans.

November 1, and the carry-over (from previous crops) on September 1, in 1933, was about 1,250,000 bags. This total of over 12,000,000 bags was about 680,000 bags less than the average annual supply during the 5 years, 1927–31.

Eggs

Egg prices have been continuously below parity since November 1929. During 1930 the spread between the farm price of eggs and the parity price became increasingly wider until it reached the greatest

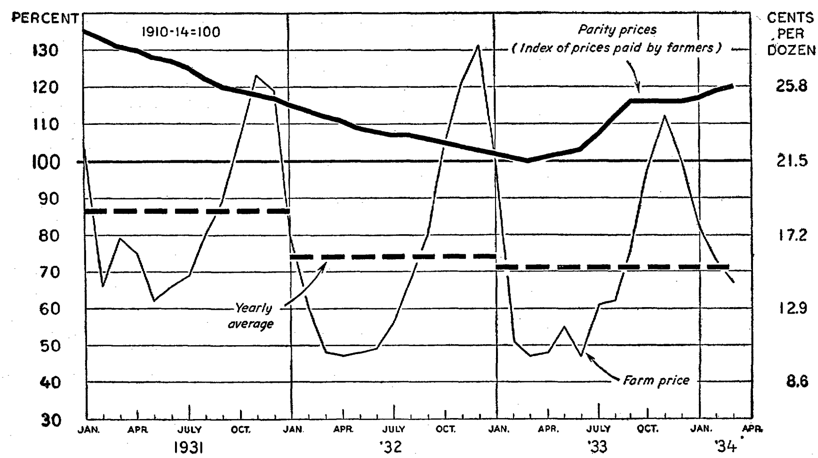

FIGURE 26.—Farm and parity prices of eggs.

disparity in February 1931, when the farm price was only 50 percent of parity. The condition of extremely low egg prices in February was repeated in 1932 and again in 1933 as a result of unseasonably mild winter weather in the Middle West, and also because feed prices declined even more than did egg prices, both of which factors served to bring about an unusually large winter production.

In October 1933 the average farm price of eggs was 20.8 cents per dozen. This was 8.2 cents or 28 percent below parity. Light storage stocks of eggs in the fall of 1932, and curtailed production in the fall of 1933, caused egg prices to be nearer to parity during those two seasons than was the case in either 1930 or 1931.

Rapidly rising feed prices caused curtailed production of eggs during the fall of 1933, with the result that storage stocks of shell eggs moved into consumption at a very satisfactory rate.

Apples

For 20 years or more the apple industry of the United States has been under the pressure of economic forces tending to produce favorable readjustments. The depression found it well equipped for efficient production. It had a relatively large proportion of the better varieties, and its production was almost as heavy as it had been 20 years earlier,

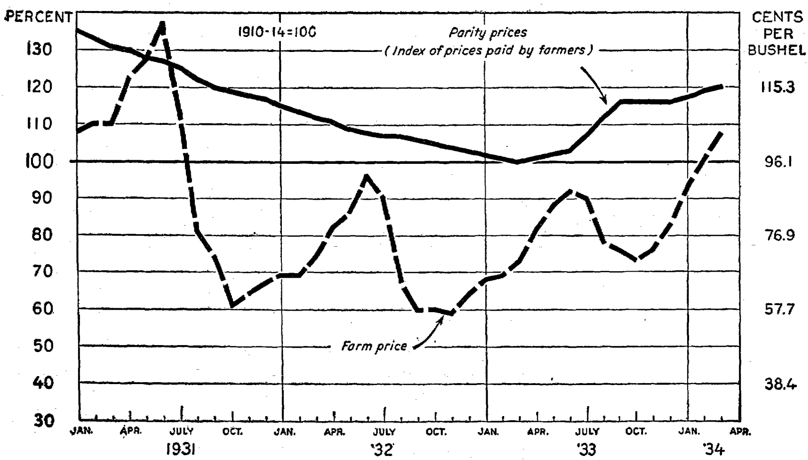

FIGURE 27.—Farm and parity prices of apples.

when the number of apple trees in commercial orchards was twice as great. The depression speeded the readjustment process. Growers decreased tree plantings, removed trees of odd varieties, and concentrated new plantings in the more popular varieties. A shift from farm to commercial orchards, which started many years before, continued. Curtailment of production expenditures reduced the bearing capacity of the orchards. In consequence, apple prices showed more strength than the prices of some other orchard crops.

Apple growers have to contend, however, with heavy competition from other crops, and this competition will probably continue in United States markets. The production of oranges, grapefruit, peaches, pears, and grapes, and imports of bananas, increased 50 percent from 1919 to 1933. Meantime, European countries are modernizing their fruit industries and erecting trade barriers which narrow the export outlet for American apples.

Apple prices in 1933 averaged higher than in 1932. On November 15, 1933, the United States farm price was 73.1 cents a bushel, as compared with 57.1 cents in November 1932, and a November average of 75.5 cents for the years 1910–14. Apple prices in this country depend in part on the world market. Our yearly exports range from 12 to 20 percent of the commercial crop, and any serious check to the export movement reacts at once on domestic prices. In 1933 the total apple crop of the United States was about 144,000,000 bushels. The average production in the 5 years 1926–30 was 168,773,000 bushels. This decline, however, does not necessarily indicate that the supply situation has been permanently improved. Orchards are now below normal bearing capacity, and could be rather quickly brought back to normal under the stimulus of increased business activity and increased production expenditure.

Tobacco

Since 1930 the price for practically every kind of tobacco has remained well below parity. The average price for all types fell from 80 percent of the parity level in 1930 to 60 percent of that level in 1931. In 1932, however, due to the reduced crop, prices for every class of

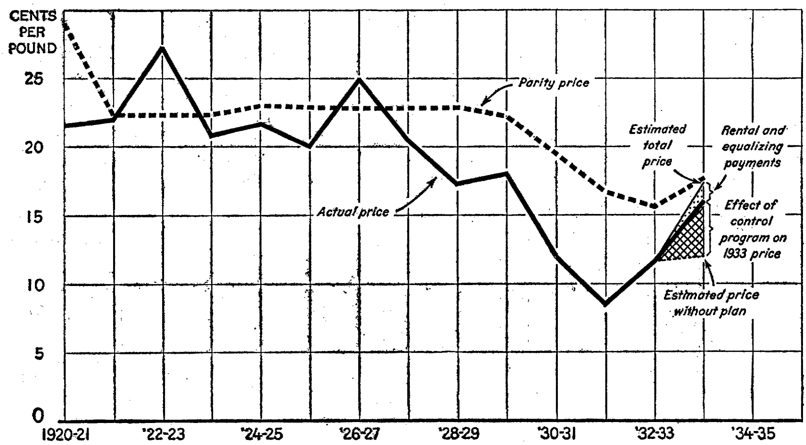

FIGURE 28.—Flue-cured tobacco; parity and actual prices, 1920–33.

tobacco except cigar leaf showed improvement, and the average of all types was 20 percent below parity. Prices for cigarette tobaccos were helped somewhat in 1932 by the unusual demand condition caused by low-priced cigarettes. Already prices for some types of the 1933 crop have been lifted by the adjustment program, but the extent of this effect is shown only for flue-cured. These types are selling at prices about 50 percent higher than last year. It is estimated that the production-adjustment program and the marketing agreement between the Secretary of Agriculture and leading buyers has lifted the average price for the entire flue-cured crop at least one third. The amount paid growers for this crop, together with benefit payments to be made within the current marketing year, will bring average receipts per pound to a figure approximating the present parity for this tobacco.

The post-war base period for tobacco, August 1919 to July 1928, was chosen by Congress. Wide differences exist between the 25 types of tobacco grown in the United States. To facilitate the adjustment of supplies to consumption, the Administration deemed it advisable to class these types as commodities—cigar leaf, flue-cured, burley, fire-cured, dark air-cured, and Maryland tobaccos.

The supply of most kinds of tobacco is excessive, owing largely to decreased world consumption. However, burley supplies are at record levels because for each of the last 5 years, production has exceeded the consumption, which has changed very little. For cigar-leaf, fire-cured, and dark air-cured tobaccos supplies are very large in relation to the present low world consumption. Stocks of these types are excessive in relation to needs, since production has not fallen enough below the amount used for holdings to be brought in line with the lowered consumption.

Drastic declines in foreign consumption of our flue-cured, fire-cured, and dark air-cured types have taken place since 1930. Though foreign consumption of flue-cured tobacco still remains 25 percent above that of a decade ago, it has declined around 30 percent from the level of 1930. Other countries now consume about 50 percent less of our fire-cured types and about 75 percent less of our dark air-cured tobacco than they did 10 years ago. These types have been displaced largely by competing foreign-grown tobacco. Exports of most types have been larger in recent months than for the same months of the previous year. The assurance of a smaller crop in 1934 and the Government's monetary policy appear to be contributing to the increased export movements from the 1933 crop.

Total United States consumption of tobacco declined only about 10 percent during the depression. The greatest declines occurred in cigars and chewing tobacco. The consumption of these products, which followed downward trends for a number of years, has declined sharply since 1930. The phenomenal increase in the use of cigarettes which took place after the World War, was halted in 1930. Though the consumption of cigarettes in 1933 was 10 percent higher than in 1932, it was still 7 percent below the predepression peak. The consumption of smoking tobacco increased during the depression, but not sufficiently to affect the decline in cigarettes.

This chart differs from the other charts given herewith in that it does not have the scale showing parity prices and actual prices as percentates of the pre-war base prices. In this case the base prices are for the period 1919–28.

Louis H. Bean, *Economic Adviser, Agricultural Adjustment Administrator*, and
Arthur P. Chew, *Assistant to the Director of Information, with the cooperation of the Bureau of Agricultural Economics.*

AGRICULTURAL Adjustment Act Rests on Working of Established Economic Law

Methods and procedures of the Agricultural Adjustment Act rest on a recognition of the actual workings of the so-called law of supply and demand. Previous farm relief legislation failed because it did not cope with the fundamental difficulties of controlling excessive supplies, removing inefficient marketing methods, and improving general purchasing power. The Agricultural Adjustment Act goes directly to two of these basic difficulties—unbalanced production and expensive marketing. The allotment scheme for controlling production was devised not only to remove the current surpluses, but to class these types as commodities—cigar leaf, flue-cured, burley, fire-cured, dark air-cured, and Maryland tobaccos.

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It would be possible to levy a tax and disburse the resulting funds to farmers as benefit payments without any accompanying control of production. Under certain conditions such operations would increase farmers' incomes. The possibilities of the method are materially different as between products some of the supply of which are exported and products which are sold entirely on the domestic market.

When control of production is combined with the collection of tax and disbursement of benefit payments, farmers may receive long-time benefits in reduction of excessive supplies and general advance in the level of prices, even if the value of the crop for the current season were not increased. This is particularly true of nonperishable crops, where excess supplies from 1 year pile up and act as a depressing influence on prices for a long time thereafter. As is evident from the following discussion, however, the current income from crops such as wheat and cotton would be increased even if there were no accompanying control of production; the fact that under the Agricultural Adjustment Act both methods are combined to make the potential advantages of the method all the greater.

Effectiveness of Processing Taxes

The tax on the domestic processing of individual farm products as specified in the act may serve two purposes: (1) To provide funds for the payment of benefits to farmers for control of production, and (2) to produce more income from the commodity than would otherwise be received.

In those cases where the imposition of the tax, together with other arrangements makes possible effective control of production, the processing tax may be worth while even though the combined income from sale prices and tax is no larger than would be received in the absence of a tax. The tax may be still more effective, however, if it not only provides funds for control of production but also directly produces a larger net income for the same quantity of product.

Varying Effectiveness of Tax on Different Products

Although the processing tax is to be collected from the processors, that does not necessarily mean that the full amount will be paid by the processors themselves. In paying the tax, the processor may derive the necessary funds from three sources: (1) Charging higher prices to consumers, (2) paying lower prices to producers, or (3) operating on lower margins.

The extent to which prices to consumers can be raised depends upon the consumers' willingness and ability to pay a higher price without reducing purchases. In some commodities, such as bread and fluid milk, differences in retail price apparently have little bearing on the quantity consumers will purchase. In such cases, the processing tax may be in large part passed on to consumers without material reductions in the quantity that they will purchase.

The extent to which the processing tax can be passed back to farmers, in paying them a smaller price for the product purchased, is partly determined by the ability of farmers to resist such lower prices. Over a long period, farmers can resist by reducing supply. Once a given crop has been produced, however, farmers can resist only by diverting part of the supply to other markets than those provided by domestic processors, or by refusing to sell at all. For products such as wheat or cotton, the ability to sell on foreign markets may strengthen the farmers' resistance. The extent and effect of this resistance depends on the readiness of foreign markets to take increased quantities without serious price concessions. For some commodities, such as cotton, there may be a marked expansion in the quantity which can be sold abroad as a result of a relatively slight decline in price. In such cases, farmers are in good position to resist efforts to reduce the prices paid them, since they could readily dispose of additional quantities of products abroad.

Finally, part of the tax might be absorbed by reducing the margin received by processors, and marketing and distribution agencies. These agencies cannot reduce their costs below that required to cover their current cash outlays without eventually being forced out of business. On the other hand they can operate over considerable periods without the same return on their investment as they have received in the past. The profits earned by corporations engaged in this field have shown less reduction during the period of the depression than those of other corporations, and in some cases have even increased. This indicates there may be real possibility of absorbing part of the tax through reducing the margin taken for distribution.

During periods of declining prices, the changes in wholesale prices tend to lag behind changes in the prices for raw materials, and changes in retail prices tend to lag behind changes in wholesale prices. Distributors' margins widen, or at least do not shrink as fast as they otherwise might shrink. The imposition of the processing tax reverses this process by creating a condition where the cost of raw materials to the processor tends to increase. Since, ordinarily, wholesale prices do not increase as rapidly as the cost of the raw materials, and retail prices do not rise as rapidly as wholesale prices, the tax may exert a definite tendency toward reducing the margin.

This appraisal of the ways in which the tax may be borne indicates that portions of it may be absorbed in each of the three ways dependent on the conditions in the particular commodity. The final result for any commodity would depend on the net balance among the effects in all these directions.

Applying the Tax on Cotton

If a tax of 4 cents per pound were imposed on the domestic processing of cotton, that would tend to reduce the domestic consumption. Even if the entire 4 cents were passed on to domestic cotton purchasers, however, it is unlikely that this much advance in cost would reduce the domestic consumption by more than half a million bales. In the absence of production control, it would be necessary to add that half million bales to the quantity to be disposed of in foreign markets. Foreign markets are much less sensitive to changes in cotton prices than are domestic markets, however; so this additional half million bales could be added to exports without causing much of a drop in world price levels. Preliminary estimates indicate that a 4-cent tax, with no change in production, might reduce the world price level something less than 1 cent per pound, and increase the cost of cotton to domestic consumers (tax included) by something more than 3 cents per pound.[1] The gain of over 3 cents on the 40 percent of our cotton production which goes into the domestic market would much more than offset the loss of less than a cent on the 60 percent which goes into foreign markets, and the net income from the whole crop would be materially increased in consequence.

The ability of such an operation to increase the net return from the product depends upon three factors: (1) The responsiveness of domestic consumption to change in price; (2) the responsiveness of foreign consumption to change in price; and (3) the proportion of the total domestic product which may move into export.

In the case of cotton, where more than half of the total is exported, the operation would not bring a net gain in income from domestic cotton production if it were not for the fact that domestic demand for cotton is less elastic than is foreign demand. Withdrawing a given quantity of cotton from domestic consumption and adding it to the quantities disposed of in foreign markets results in a much greater increase in domestic prices than a decline in world market prices.[2]

In commodities such as wheat, where a small proportion of the crop is exported, and where our exports contribute a small percentage of the total world supply, the probable gain in income would be much greater. The additional price would cause only a negligible decline in domestic consumption; and the addition of this quantity to export would have only slight influence on world prices, even if no effort were made to reduce production. Such a commodity offers an almost ideal situation for the operation of this plan to increase income to farmers.

Fundamentally, the domestic-allotment plan enables the quantity sold on domestic markets to be adjusted at such a level as will bring in a fair return from the domestic use of the product, even though the rest of the product is being sold for foreign use at the lower price prevailing in foreign markets. During the period while processing taxes are imposed, it guarantees to cooperating farmers that the market price plus the benefit income will bring them a parity price on that part of their production which is needed for domestic consumption. The plan offers them a protected price on their allotted share of the domestic consumption—hence the term "domestic allotment plan."

[1] These estimates are rough first approximations, but are based on the price data readily available. More exact estimates could be obtained from more elaborate examination of all the elements in the case, using the results of such precise studies as that reported in Technical Bulletin 50.

[2] If, at the same time, production were to be reduced by an equal or even larger amount, the world market price would not be forced down at all, and the entire effect of the reduction would be concentrated largely on domestic markets.

Application of Tax on Domestic Commodities

On domestic commodities the tax would primarily facilitate the control of production, but would not of itself provide increased farm income. In the case of a commodity such as butter, which sells ordinarily entirely in the domestic market with no export movement, the situation is quite different. Here there is no possibility of the farmers resisting the reduction in the farm price by diverting part of their supplies to foreign sale. The only way in which the imposition of the tax, without production control, may lead to increased income in the hands of the farmers is by increasing the price paid by consumers or by reducing the margin taken by distributing agencies. So long as the same supplies are forced on the markets, presumably consumers would pay only the same price. Only to the limited extent that distributing costs would be reduced would the imposition of the processing tax on such a commodity increase the total income which will be derived from such commodity.

It might be worth while to impose a processing tax on a product such as butter or beef cattle, merely for the sake of securing funds with which to control volume of production. Such cases offer a less promising field for increasing income through the processing tax than do those commodities such as cotton and wheat, where the balance of economic responses in domestic and foreign markets is such that even in the absence of production control a net gain may be made in farm income from the commodity, through the modification of pricing practices which would result from the application of the tax.

Reduced production does not increase income for all products. For products sold entirely on the domestic market, the utility of the processing tax lies largely in its producing the funds to bring about a reduction in the supply. This involves several further problems. (1) Is it true that for all farm products the larger the volume produced the less the income the farmers receive? (2) Even if it is true, is it to the social welfare to increase farmers' income by starving the consumer or otherwise forcing him to pay high prices?

The data available indicate clearly that for some products, such as potatoes, a given change in the volume of the crop will have a far more than corresponding change in the price on the domestic market. For such crops a crop no larger than the average or possibly slightly smaller than the average will return far more income to farmers than will crops much larger than the average.

One reason for this condition is that when supplies are unduly large prices fall to the point where farmers feed some of the crop to livestock or leave it undug to dispose of the whole crop. This is particularly true of crops of large bulk or relatively low value per pound so that transportation and marketing costs may absorb the entire retail price in years of large production.

In the case of some other products, such as butter and cattle, there is far less response to change in prices than is true in case of potatoes. For these two products a small supply will apparently sell for somewhat more than a large supply. The difference is, however, less pronounced than in the case of potatoes.

For still other products, especially semiluxury products such as some of the higher-priced fruits and vegetables, and also for specialty products such as peanuts, the data available indicate that a 10-percent increase in production causes less than 10 percent decline in wholesale or retail price. Under such conditions, a large crop may bring in more gross income than a small crop.

In all of these cases, of course, the question of cost has been ignored. Even though a large crop of peanuts may sell for more than a small crop, it may be that it costs the farmer enough extra in the way of additional harvest labor and other expenses so that he nets no more from the larger crop. As a whole, however, the proportion of total cash costs which varies with output is sufficiently small so that the gross income from the product may be taken as at least a rough approximation of the effect of changes in the production of the product on income of the farmer.

It is evident that reduction in the volume of production is not a universal answer to the problem of how to secure higher farm returns. For some products, such control of production may bring in materially increased returns; for other products it may produce an incidental increase in returns; and for still other products, control of production may actually reduce gross income. Furthermore, there are marked limitations to what may be done to increase farmers' income under any conditions so long as demand conditions remain relatively poor. With any given level of demand conditions there are thus definite limits to the effectiveness of production control as a way of raising farm incomes.

Social Benefit of Balanced Output

A certain degree of restriction of production may be desirable from the point of view of the general welfare. When farm products are produced in such abundance that the retail prices do not even pay the cost of moving them to market, and the excess is permitted to rot in the fields, such surpluses are of no value to anyone. In such cases, it is clearly to the general good to save the additional effort involved in producing the excess supply. Even where such physical destruction is not involved, the attempt to force exceedingly large supplies of cotton or wheat or hogs into consumptive channels may press prices so low that farmers' buying power for industrial products is largely eliminated. Under such conditions the inability of farmers to buy and the resulting disturbance of the normal exchange of farm products for city products may result in such a serious break-down in industrial economic activity that the city loses far more through reduced employment and general economic depression than it gains from the resulting low prices for cotton or wheat or meat.

What is needed is a balance between the production of various products and the quantities which the markets can absorb at reasonable prices and with sustained activity on the part of industry as a whole.

One further element is involved. Although the demand for individual food products is elastic in varying degree, the maximum demand for food products as a whole is quite inelastic and depends on the size of the population plus the export market. The human stomach sets the limit to the quantity of food we can use; and the area of our skin tends to set a limit to our need for textiles. There are growing uses of farm products in industry, it is true, such as fountain pens made from the casein of milk or auto tires made from cotton and rubber; but such uses of farm products are slight compared to the basic uses for food and clothing. The substitution of mechanical power for human muscle, and of heated houses for heavy clothing, has actually caused a reduction in our per capita consumption of food and clothing. There have been shifts between products, of course, as more dairy products and vegetables and less wheat and potatoes; but even including the increasing industrial uses our consumption of farm products seems to be growing no faster than our population, and probably not even quite so fast.

The limited demand for farm products makes it clearly in the general welfare that only so much farm products should be produced as are needed, either for the export market or to maintain adequate supplies for domestic requirements; and that which is produced should be in the proper balance between commodities.

It would clearly be contrary to the general welfare for farmers to be permitted to reduce the production of essential products to such a great extent as would result in famine conditions and corresponding scarcity prices for products even though such prices should produce unusually high farm incomes. There is no danger of such a contingency under the Agricultural Adjustment Act, however. As indicated in that act, processing taxes can be used only so long as the prices of farm products are below their normal relation to prices of other products. As soon as that parity has been established, the processing taxes will not apply in subsequent seasons. The act, therefore, completely prevents any extreme monopolistic practices on the part of farmers, through the control of production or otherwise.

Marketing Agreements

Marketing agreements, as provided for in the act, can reduce distribution costs, regulate market supplies, increase prices to farmers, yet protect public interests. Through voluntary agreements with associations of producers, processors, and dealers, and with the Secretary of Agriculture as a party to the agreements acting in behalf of the public welfare, it is possible to make considerable progress toward more efficient marketing. They open up opportunities in many directions for the general welfare.

Market gluts that destroy values both at the farm and at central markets can be prevented through agreements that prorate shipments according to current market requirements, and leave the nonmerchantable portion of the crop to be distributed either through relief channels or in other ways, so as to bring about a wider consumption without having the surplus portion of the crop threaten the value of the entire crop. Price demoralization that arises from the marketing of low-grade products in years of bumper crops can be prevented.

Marketing agreements may also be utilized to remove a large variety of unsound trade practices that contribute neither to the welfare of consumers nor the producers.[3]

Advertising programs which under present conditions serve largely to shift the volume of business done from one firm to another without actually expanding consumption, can, under the voluntary marketing agreements, be made to serve the interests of all producers and the distributing agencies as a group. Advertising expenditures may result in a larger total volume of consumption by emphasizing the essential characteristics of a product and its place in a higher standard of living. Such advertising can reasonably be expected to contribute toward reducing marketing spreads per unit. Advertising which bases its appeal

[3] United States Department of Agriculture, Bureau of Agricultural Economics. Unfair practices in the marketing of agricultural products. U.S.Dept.Agr., Bur. Agri. Econ. Library. 13 pp. Aug. 25, 1933. (Typewritten.)

on imaginary qualities that the article never possessed, or on emotional appeals, may lead to competitive struggles for volume which increase selling costs without any corresponding advantage to producers or consumers. Such practices might be modified by suitable marketing agreements.

Lowering Marketing Costs

Similarly, voluntary agreements open the way for reorganizing inefficient high-cost distribution facilities, in the interest of lowering the costs of marketing. Agencies entering into an agreement with the Secretary of Agriculture may undertake to retire high-cost inefficient services and to encourage the expansion of low-cost services in the interest of a greater volume of distribution, relatively lower costs to consumers, and a larger share of the consumer's dollar for the farmer.

Furthermore, marketing agreements can be utilized as a direct means of securing more adequate prices to producers. Where definite control of total supplies can be established either through prorating shipments among dealers or limiting the volume to be processed, agreements may provide for prices to producers and to distributors in accord with supply-and-demand conditions, provided most of the producers and primary distributors or processors participate in the agreement. Price fixing under these circumstances becomes economically feasible, since important elements which determine prices are brought under control. In these cases, however, the price improvement which can be secured through these agreements is limited to that which can be exerted through changes in supply and greater efficiencies in marketing, since these agreements offer no direct means of increasing effective demand for the product (except possibly to a limited extent by diverting excess supplies to relief channels).

The Agricultural Adjustment Act provides for direct efforts at improvements of marketing methods and reduced costs of distribution. Through voluntary agreements with the Secretary of Agriculture, the act makes possible the elimination of trade practices by group action which no individual distributor could undertake and which might be contrary to the antitrust laws if attempted by private agreements. By means of voluntary agreements under the Agricultural Adjustment Act, it is possible to prevent the losses to producers, distributors, and consumers that arise from the marketing of bumper crops beyond the requirements of consumers. Through marketing agreements it is possible to recognize the principle that reduced costs which result from the establishment of more efficient marketing practices should redound to the benefit of producers, distributors, and consumers. They are also predicated on the sound economic principle that prices to growers, distributors, and consumers can be established at basic levels for each group consistent with existing conditions of consumer purchasing power; provided there are the requisite definite arrangements for carrying through needed readjustments in marketing organization, structure, and pricing methods.

Many of the problems in distribution already discussed, which tend to reduce the farmers' share of the consumer's dollar, cannot be adequately solved without the centralizing power of a Government agency.

The Agricultural Adjustment Act provides for the removal of surpluses through means other than direct reduction of production. By the use of a portion of the processing taxes, surpluses may be removed by the elimination of domestic underconsumption and by the expansion of markets, as well as by the reduction of acreage. The flexible provisions of the act permit the setting up of marketing agencies to dispose of surpluses among the millions of domestic unemployed consumers and to dispose of surplus crops abroad without affecting the usual currents of domestic or foreign trade.

Influence of General Recovery

The efforts to increase agricultural income will help, and will be helped by, general economic recovery. Agricultural income and general purchasing power are definitely interrelated. For certain branches

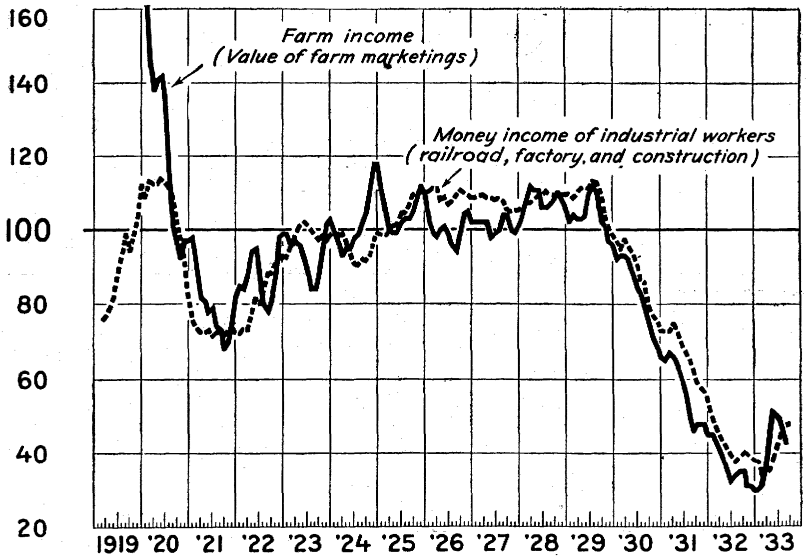

FIGURE 29.—Money income of industrial workers and farm income, 1919 to September 1933. Farm income and industrial-consumer incomes are basically interdependent; at certain critical points, however, farm income may either decline (as in 1919–20) or rise (as in 1921–22) before the similar changes in consumers' incomes. The prospect for foreign demand at the end of 1932 was not at all favorable. A rise in farm income if produced by reductions in surplus supplies would assist in promoting general recovery as in 1921–22, when domestic crops were reduced, and in 1924–25, when foreign demand was stimulated by reduced crops abroad.

of agriculture, world-demand conditions may at times bring about an increase or decrease in farm income, but the major portion of farm income is so intertwined with the national income that it is statistically difficult to treat them separately and to measure the influence of one upon the other. For example, during most of the period 1921–32, the changes in farm income have paralleled the changes in the money income of industrial workers (fig. 29). At certain critical periods, however, improvement in farm income preceded and supported the revival in consumer incomes. During the last half of 1921, the volume of industrial activity had begun to advance, but money incomes of industrial workers remained at their low levels until the spring of 1922. Farm income, however, largely as a result of curtailed supplies of cotton and other crops, rose sharply during the winter months of 1921, thus aiding the progress of revival. Again in 1924 when industrial activity was declining and consumer incomes were being reduced, a sharp advance in farm income, this time due to favorable foreign-demand conditions growing out of a small world wheat crop, helped to check the business recession and bring about business revival.

Similar beneficial influences could reasonably be expected to result from the operations of the Agricultural Adjustment Act, as bases are laid for higher prices through reductions in current or prospective supplies. The control of production and elimination of surpluses can contribute to general industrial recovery and increased consumer incomes through its effect on prices. The rise in farm prices through actual or potential reduction in acreage and production, insofar as it enhances the inventory value of surpluses, strengthens the credit structure, and gives farmers a greater income, and spreads purchasing power. The distribution of benefit payments through advances to producers before processing taxes are collected, creates a fund of purchasing power that serves to promote revival in the same way as a similar extension of credit in actual use. Increase in agricultural income may thus serve to expand other incomes as it did in the 1921–22 revival.

The dependence of farm income on the national income, once the broad forces of revival are well in motion, naturally serves to emphasize the restricted field of influence on prices that may be exercised by the operations of the Agricultural Adjustment Act. The level of prices at the farm is controlled by several factors—the volume of production, distribution, and processing costs and charges, consumer purchasing power, and monetary changes. The operations of the Agricultural Adjustment Act can go a great way toward raising prices through the reduction of supplies, and it may increase farm returns through reducing certain distribution and processing costs, and removing unfair and inefficient trade practices. In cases where these distribution and processing charges are determined largely by transportation rates and industrial wage levels, benefits to farmers from marketing agreements will depend very largely on the extent to which industrial wages and transportation rates respond to current depressed conditions. The operations of the Agricultural Adjustment Act cannot, of course, restore that portion of the fall in farm prices which is due to monetary policy and to consumer incomes, except as improvement in the latter is the outgrowth of benefit payments to farmers. For complete restoration of pre-war parity prices, the removal of surpluses must be accompanied by other action aimed toward expanding employment and consumer incomes, and bringing about more nearly normal relations between various prices and services.

Other Factors in Recovery Program

The Agricultural Adjustment Act is an integral part of the whole recovery structure. It is one of the several measures that have been adopted to expand purchasing power of consumers. The National Recovery Act, which was enacted shortly after the Agricultural Adjustment Act, is intended to raise pay rolls through the elimination of sweatshop wage conditions, through balancing increased efficiency with shorter hours so as to decrease unemployment, to coordinate and control business activity so as to create a freer and stable flow of purchasing power. The Public Works Administration was organized to expand purchasing power by undertaking activities which call for a great outlay of materials and wages, so that the latter might enhance the demand for agricultural and other products of current consumption. The Farm Credit Administration was established so as to refinance farm mortgages and to provide other credit facilities to farmers at lower interest rates and at better terms, with the purpose of releasing agricultural buying power for the current purchases of industrial products. The Home Loan Administration was similarly organized to help refinance and extend urban credit so as to release current purchasing power for the products of industry and agriculture. The Emergency Relief Administration was organized to provide temporary relief to the unemployed victims of this depression. This, too, provides for Federal, State, and local distribution of funds so as to give those on relief some measure of purchasing power. All of these recovery efforts are interrelated. Recovery calls for removing agricultural-price disparities and increasing farmers' purchasing power, wiping out unemployment, expanding industrial production, restoring incomes to city workers, creating a demand for raw materials of agriculture, mining, and manufacturing, and so bringing about a general business revival on an enduring basis. The Agricultural Adjustment Act and the other recovery measures are thus fundamental in promoting a lasting and self-sustaining general recovery.

MORDECAI EZEKIEL, *Economic Adviser to the Secretary of Agriculture*, and
LOUIS H. BEAN, *Economic Adviser, Agricultural Adjustment Administration.*

APPLE and Pear Export Act Promises Important Benefits to Producers

The Export Apple and Pear Act, approved June 10, 1933, is designed to promote the export of apples and pears from the United States, to protect the reputation of these American-grown fruits in foreign markets, to prevent deception or misrepresentation as to their quality when moving in foreign commerce, and to provide for the official inspection of these products before they enter foreign commerce.

There has been a steadily increasing tendency on the part of foreign governments during recent years to restrict the importation of American fruits in various ways. In some instances only fruits having certain quality may be imported during certain periods. In other instances there has been increasing rigidity of sanitary requirement and inspection. Great Britain now prohibits the importation of the lower grades of American apples between July 1 and November 15 of each crop year. The higher grades of apples, which are allowed entry, must be practically free from apple maggot. There is no British regulation or order excluding fruit infested with this insect, but representations had been made to this Government concerning the undesirability from the British point of view of importing such fruit. To avoid an embargo or other official restriction which appeared imminent, it was necessary to provide some authority under which uniform and universal inspection of export shipments could be made. The voluntary inspection service of the Department could be made effective only with the cooperation of all the shipping interests, which obviously would not be obtained, for at times the British market was so much better than the American for certain varieties and sizes that uninspected lots were certain to be exported.

It is probable that the failure of some exporters to cooperate with the United States Department of Agriculture and the steamship lines in a voluntary plan to prevent the exportation of infested fruit was the interest rates and at better terms, with the purpose of releasing agricultural buying power for the current purchases of industrial products. The Home Loan Administration was similarly organized to help refinance and extend urban credit so as to release current purchasing power for the products of industry and agriculture. The Emergency Relief Administration was organized to provide temporary relief to the unemployed victims of this depression. This, too, provides for Federal, State, and local distribution of funds so as to give those on relief some measure of purchasing power. All of these recovery efforts are interrelated. Recovery calls for removing agricultural-price disparities and increasing farmers' purchasing power, wiping out unemployment, expanding industrial production, restoring incomes to city workers, creating a demand for raw materials of agriculture, mining, and manufacturing, and so bringing about a general business revival on an enduring basis. The Agricultural Adjustment Act and the other recovery measures are thus fundamental in promoting a lasting and self-sustaining general recovery.

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It is probable that the failure of some exporters to cooperate with the United States Department of Agriculture and the steamship lines in a voluntary plan to prevent the exportation of infested fruit was the determining factor in winning the support of the industry as a whole for mandatory legislation.

Importance of the Export Trade

Yearly exports of fresh apples have ranged from 12 to 20 percent of the domestic crop in recent years. In the 1932–33 season we exported 13,800,000 bushels of apples, or about 16.1 percent of the total commercial crop, which was well below the average of the previous 5-year period. During the same season we exported 2,400,000 bushels of pears, or about 10.9 percent of the total crop. Recent yearly exports of pears have ranged from 6 to 11 percent.

It is easy to see that if our export market were closed the effect upon domestic prices would be disastrous. Furthermore, much of the export demand for apples has been for the smaller sizes which are least in demand in the home market. Thus the export outlet has reduced the pressure at the exact point best calculated to strengthen the home market. It is therefore highly important that the appearance and intrinsic quality of American fruits on foreign markets shall be such as to commend them and to give the general impression that they are desirable products, distinctly superior to the orchard run of local offerings.

Results Expected from the Act

The fruit trade believes that this action by the Government to limit exports to fruit of desirable quality and appearance will meet with the approval of foreign buyers and will tend to lessen the apprehensions of foreign governments.

It has been well known abroad that the Government of the United States assumed no responsibility for the character of fresh fruit exported and that it made inspections and issued sanitary certificates only to meet the requirements of specific foreign governments. The passage of the Export Apple and Pear Act marks a change in governmental policy in this respect. Hereafter, regardless of the requirements of foreign governments, the United States assumes responsibility for establishing minimum qualities of apples and pears that may be exported in carload lots to any foreign destination. The inspection of this fruit is no longer at the option of the exporter nor merely to establish those facts that must be determined to meet certain foreign requirements, but is universal and uniform as to the minimum requirements set up by our own Government. These requirements are sufficiently rigid to satisfy a majority of our important foreign customers.

Nature of Regulations Under the Act

The act provides that the Secretary of Agriculture may designate the conditions other than those of grade which the fruit must meet before it may be exported. Under this provision the regulations require:

(a) The packages shall be plainly and conspicuously marked with (1) the name and address of the grower or packer; (2) the variety; (3) the grade names not lower than those specified in regulation 5; and (4) the numerical count or the minimum size.

(b) Each package shall be packed so that the apples and/or pears in the shown face shall be reasonably representative in size, color, and quality of the contents of the package.

Another regulation provides that

no certificate shall be issued under this act and these regulations except upon a showing satisfactory to the Chief of the Bureau of Agricultural Economics that the apples and/or pears comply with the tolerances for spray residues established under the Food and Drugs Act of June 30, 1906.

The machinery already in existence for the inspection of fruit under the farm products inspection law has been utilized for the purpose of making inspections under this act. This enabled the Department to render the service wherever required from the moment that the act became effective.

Enforcement

The act forbids any common carrier to receive any apples or pears for a foreign destination unless accompanied by the official certificate required by the act. It is hoped that this provision will render the enforcement of the act almost automatic, for it is not believed that many common carriers, either by rail or water, will intentionally risk incurring the penalties of the act for the sake of transporting a few uninspected shipments in violation of the law. It is believed that a few violations that occurred during the first 60 days of the operation of the act may be charged to a lack of appreciation of the seriousness of the situation by certain local and minor officials of the boat lines involved. On the whole, the first few months of operation indicate that the act is entirely workable, salutary, and desirable.

WELLS A. SHERMAN,
Bureau of Agricultural Economics.

AVIATION Brings Foreign Plant Pests and Makes Quarantines Necessary

To the guardian of the horticultural interests of this country the airplane suggests another means of entry for plant pests. The development of fast ocean liners with improved refrigeration facilities, and more recently the use of the airplane for international travel, have made it possible to bring to our shores in a fresh condition many perishable fruits and vegetables, with the attendant pest risk, which heretofore were excluded by lack of transportation facilities. Fruits from the tropics of Central America and South America may reach subtropical Florida within a day or two from the time they are gathered. Brownsville, Tex., is only a few hours removed from Mexico City and Tampico, Mexico. Mountain ranges, deserts, oceans, and other natural geographic barriers which have tended to keep plant pests in their place, so to speak, for countless centuries have in effect been erased from the map.

In an effort to cope with this situation quarantines and restrictive orders prohibiting or restricting the entry of plants and plant products have been promulgated under authority of the Plant Quarantine Act of 1912. Plant quarantine inspectors engaged in the enforcement of these quarantines and restrictive orders are stationed at all important ports of entry, including landing fields for airplanes from foreign countries. Such plants, fruits, and vegetables as are permitted to enter are examined closely for the presence of plant pests (fig. 30). Baggage of passengers (fig. 31), ships' stores, crews' and passengers' quarters on ships, and airplanes from foreign countries are also examined by these inspectors for the presence of prohibited fruits, vegetables, or other plant material.

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Bureau of Agricultural Economics.

AVIATION Brings Foreign Plant Pests and Makes Quarantines Necessary To the guardian of the horticultural interests of this country the airplane suggests another means of entry for plant pests. The development of fast ocean liners with improved refrigeration facilities, and more recently the use of the airplane for international travel, have made it possible to bring to our shores in a fresh condition many perishable fruits and vegetables, with the attendant pest risk, which heretofore were excluded by lack of transportation facilities. Fruits from the tropics of Central America and South America may reach subtropical Florida within a day or two from the time they are gathered. Brownsville, Tex., is only a few hours removed from Mexico City and Tampico, Mexico. Mountain ranges, deserts, oceans, and other natural geographic barriers which have tended to keep plant pests in their place, so to speak, for countless centuries have in effect been erased from the map.

In an effort to cope with this situation quarantines and restrictive orders prohibiting or restricting the entry of plants and plant products have been promulgated under authority of the Plant Quarantine Act of 1912. Plant quarantine inspectors engaged in the enforcement of these quarantines and restrictive orders are stationed at all important ports of entry, including landing fields for airplanes from foreign countries. Such plants, fruits, and vegetables as are permitted to enter are examined closely for the presence of plant pests (fig. 30). Baggage of passengers (fig. 31), ships' stores, crews' and passengers' quarters on ships, and airplanes from foreign countries are also examined by these inspectors for the presence of prohibited fruits, vegetables, or other plant material.

To the foreigner coming to this country or to the tourist returning home, the presence of a fruit or a plant or two in his baggage may seem of little consequence. Experience has shown, however, that a great many of the plants and fruits intercepted in such baggage actually harbor insect pests or plant diseases.

Interceptions at Airports

The importance which the airplane has assumed as a means of introducing plant pests is well illustrated by the inspection records for the fiscal year ended June 30, 1933. During that period a total of 3,427 airplanes was inspected at 10 ports of entry, and 626 interceptions of prohibited plant material were made. From this material 81 different

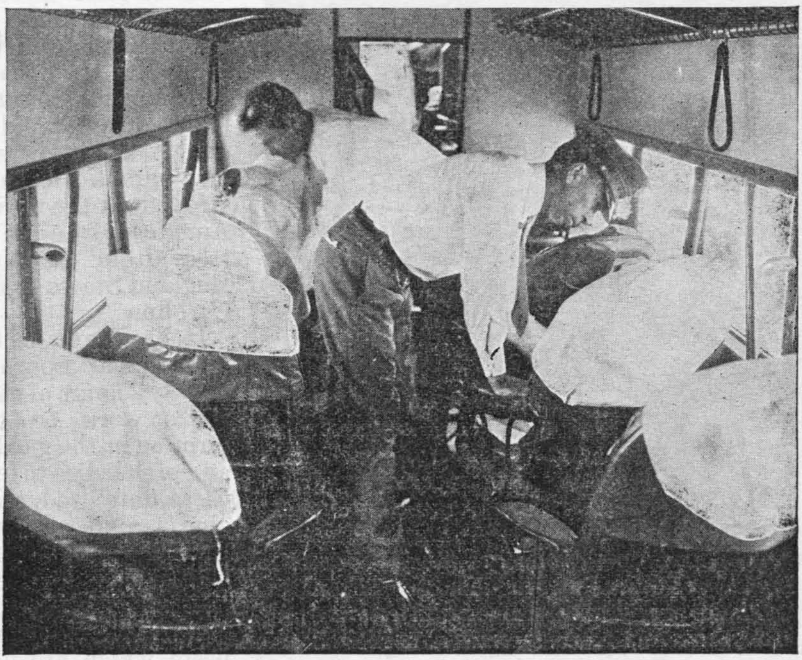

FIGURE 30.—Inspecting the interior of an airplane from Mexico at Brownsville, Tex., for the presence of prohibited plant material.

lots of insects were taken. Among the insect pests which have been intercepted in plant material brought to this country by airplane during the past few years are the citrus blackfly, a very serious pest not known to occur in the United States, larvae of injurious fruit flies, several species of scale insects, the pink bollworm, and many other insects which are of lesser importance.

When the *Graf Zeppelin* made her first trans-Atlantic voyage in October 1928, 7 species of insects and 2 plant diseases were found in bouquets of flowers which had been used for decorative purposes in the passengers' quarters. Again in August 1929, when this airship made her second visit to this country, 20 species of insects, 6 of which were not known to occur in the United States, were taken by plant quarantine inspectors from plant material found on board.

It is difficult to estimate the importance of such interceptions. Frequently insects or plant diseases which are considered as of limited economic importance in their native habitat suddenly become pests with great powers of damage when introduced into other countries where they are free from their natural enemies and where conditions in general are favorable for their multiplication. Excellent examples of this are the gypsy moth, the Japanese beetle, the oriental fruit moth, and the San Jose scale, insects which have been introduced from foreign countries and on which millions of dollars are spent each year in the United States in an effort to keep them under control. We might note the chestnut blight as another example. Native chestnuts in Asia have a strong immunity against the blight, but when the disease reached this country it spread very rapidly, and in a few years it had practically destroyed all the native American chestnut trees from the New England States to the Carolinas.

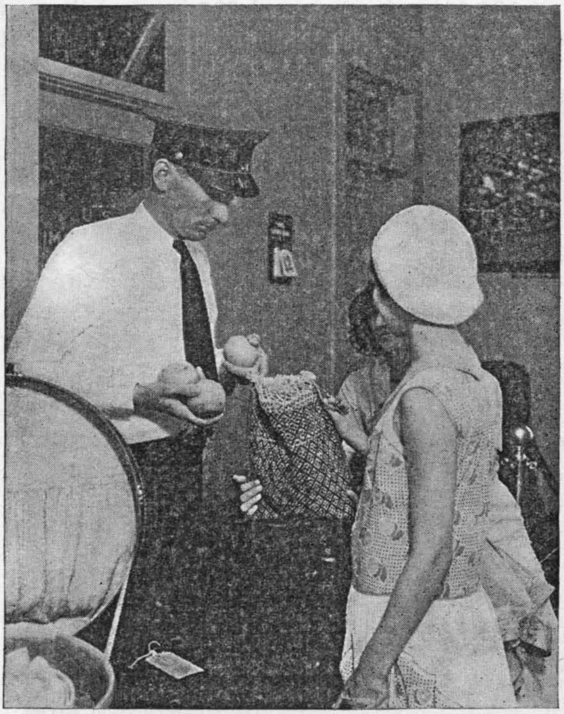

FIGURE 31.—Inspection of passengers' baggage arriving at Brownsville, Tex., by airplane from Mexico.

It has been estimated that approximately 2 hours of each day's work on the farm or in the garden and orchard go to feed these uninvited, alien guests, and an even greater burden may be placed upon American agriculture should any of the additional pests which are now coming to the United States by ship and airplane succeed in establishing themselves in this country.

F. A. Johnston, *Bureau of Plant Quarantine.*

BANG'S Disease May Enter the Body Through Skin or Eye, Recent Studies Show

One of the most important facts to learn about a communicable disease is the route or routes through which it enters. This knowledge enables one to place obstacles in the way of the invading disease germs and to take other precautions to prevent them from entering the body. Without such knowledge one can do little more than guess at the best preventive procedures.

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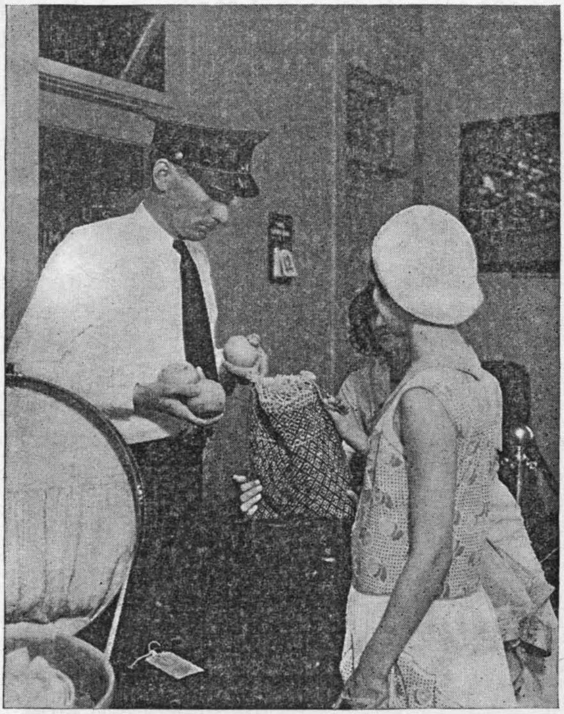

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In the case of Bang's disease, or infectious abortion as it is also called, there was a popular belief for a long time that because the uterus was the principal site of the disease, the germ causing it must enter this organ through the canal leading to the exterior. The germ was thought to be introduced by the bull at the time of service or later in some other way. Experimental proof, however, that this often happens has not been forthcoming. Though the bull in rare instances may infect cows directly by service, present evidence indicates that he is not an important means of spreading the disease unless his sexual organs are diseased. Even then he may spread the disease indirectly by contaminating his environment rather than directly through service.

Soon after the Danish investigator, Bernard Bang, discovered the causative organism, *Brucella abortus*, he found that it could be communicated to pregnant cows and heifers by placing infected material in their mouths. His results have been confirmed by numerous other investigators, and for a number of years the digestive tract was regarded as almost the exclusive channel through which infection took place. Although experiments have shown that it is a very important one, later investigations have indicated that cattle may become infected through two other channels, (1) the mucous membrane, called the conjunctiva, surrounding the eyeball, and (2) the skin. Exposure through the conjunctiva has been subjected to many tests, and it has been found that one of the most certain artificial methods of transmitting Bang's disease to cattle is to deposit 2 or 3 drops of infectious material around the eyeball. In most cases a susceptible, pregnant animal that is exposed in this manner contracts the disease. Even a single drop of such material from an aborted fetus has caused a pregnant cow to become infected and abort. Whether enough infectious material would reach the eyes under natural conditions to cause disease would be very difficult to determine, but it seems reasonable to believe that it could.

Germs Penetrate the Skin in Exposure Experiment

Until recent years, it was generally assumed that disease germs were rarely able to pass through the skin while intact. However, several investigators have proved that this theory does not hold true for all disease germs and that *Br. abortus* can pass through the skin of the guinea pig and cause the disease.

On subjecting cattle to skin exposure, Bureau of Animal Industry investigators proved that the disease can be transmitted to cattle whether the skin is slightly abraded or intact at the time the germs are applied. An experiment was made in which 4 pregnant heifers were exposed to infection by slightly abrading a small area of skin and immediately applying the infectious agent to the injured surface. As a result of this treatment, all of the animals became infected. A similar experiment made with 16 pregnant cattle, in which the infectious agent was similarly applied to the uninjured skin, resulted in 10 of them becoming infected. In both experiments, extreme precautions were taken to eliminate the possibility of the infection entering the animal except in the manner under investigation. It thus appears that *Br. abortus* is not only capable of transmitting Bang's disease to cattle through the slightly injured skin, but can also penetrate the uninjured skin and cause the disease.

The ability of *Br. abortus* to transmit the disease upon coming in contact with the skin, as experimentally shown, suggests certain ways by which this method of exposure would communicate the malady under natural conditions. Animals frequently abort unexpectedly when stanchioned in stables and before being segregated often grossly contaminate adjacent cattle as well as floors and gutters. Since the uterine fluids of aborting cows are commonly saturated with the *Br. abortus* germs, their contact with the skin of other cows would naturally be expected to furnish severe exposure. Susceptible cows lying on ground contaminated with fresh discharges from aborting cows or standing in barnyard mud or manure contaminated with the germs might readily be exposed to infection through the skin. Cows having slight skin injuries would naturally be in greater danger of contracting the disease than those without injuries.

It appears that the transmission of the disease through the skin is determined to some extent by the numbers of the germs to which the skin areas are exposed and also by their virulence. Milk from a cow infected with *Br. abortus*, in which the germs were known to be present, was repeatedly applied to freshly abraded surfaces of the teats of a susceptible cow, but the animal failed to acquire the disease. Since the milk of cows infected with *Br. abortus* commonly contains relatively few *Br. abortus* germs, its failure to transmit the disease through the slightly injured surfaces of the teats was believed to be due to the relatively small number of germs that were applied. More heavily infected materials, such as uterine discharges from aborting cows, would be likely to transmit abortion disease.

Experimental evidence indicates that afterbirths and uterine fluids from aborting animals, which are usually saturated with the abortion germs, are decidedly more infective for susceptible cattle than milk infected with *Br. abortus*, which usually contains relatively small numbers of the germs.

Precautions to Prevent Human Infection

It is well to remember that *Br. abortus* may cause undulant fever in man and that he, in all probability, can be infected through the skin. It is advisable, therefore, for stockowners and others who care for livestock to take the precaution to wash their hands carefully with soap and water as soon as possible after they have handled aborted fetuses or have come in contact with infected discharges, either from aborting cows or sows. The latter especially are a source of danger because the type of *Br. abortus* that affects swine appears to be more infectious for man than the one that affects cattle.

W. E. Cotton and J. M. Buck,
Bureau of Animal Industry.

BARBERRY Eradication Betters Quality and Production of Grain

Removing rust-spreading barberry bushes from 13 of the North Central States is proving an effective means of preventing one of the chief causes of poor-quality grain and wide fluctuations from year to year in the yield of small-grain crops. As is the case with many other diseases of farm crops, the amount of damage caused by stem rust during any one season may vary from practically none to complete destruction of the crop, depending (1) upon the amount of inoculum (rust spores) present in the air about the time the grain is heading, and (2) the kind of weather that prevails during the time when the grain is filling.

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Not infrequently during the period 1900–1920 in the Great Plains area good crops of wheat, oats, barley, and rye were, in a period of 2 to 3 weeks, partially or completely destroyed by the rapidly spreading, destructive stem-rust disease. Agricultural people viewed with alarm the steadily increasing loss from rust. Unlike other crop hazards, stem rust usually injures the crops when the grain is nearly mature and when moisture and temperature conditions favor a normal or bumper crop.

The seemingly spontaneous manner in which stem rust appears and its disastrous effect upon grain crops resulted in the disease becoming recognized as the most troublesome factor, aside from weather, with which grain growers of the upper Mississippi River Valley had to contend. The stable production of grain of good milling quality was becoming increasingly difficult because of the yield and quality fluctuations resulting from rust damage.

Federal-State Campaign

Since 1918, 13 States—Colorado, Illinois, Indiana, Iowa, Michigan, Minnesota, Montana, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin, and Wyoming—and many independent organizations of farmers and business people have cooperated with the United States Department of Agriculture in an effort to remove from the North Central States this local early-spring source of stem-rust spores. During this time nearly 20 million rust-spreading barberry bushes have been destroyed. The following figures indicate that progress in eradication has been accompanied by a steadily decreasing amount of rust: During the period 1916–21 the average annual loss to wheat in these States was 51 million bushels; for the period 1922–27 the average annual loss was 17 million bushels; and for the period 1928–33 the average annual loss had decreased to approximately 4 million bushels.

Although many barberry bushes remain in out-of-the-way places within these States, a great many bushes so located as to be a continuous rust menace to small-grain crops have been destroyed. With the opportunity for further insuring grain growers against the rust hazard and stabilizing the production of grain crops, the Public Works Administration in 1933 authorized the expenditure of N.R.A. funds to clean up many areas where barberry bushes were known to exist but where limited funds had prevented previous organized eradication efforts. Several years of progress in combating the stem-rust hazard furnishes an abundance of evidence that complete eradication of the rust-spreading barberry in the upper Mississippi River Valley will do much to prevent future widespread destructive epidemics of the disease.

W. L. POPHAM, *Bureau of Plant Industry.*

BEEF Grade is Affected Chiefly by Feeder Grade and the Feed-Lot Gain

Studies conducted cooperatively by the Department and many State agricultural experiment stations in connection with the Nation-wide project, cooperative meat investigations, have thrown new light on the effects of the grade of feeder cattle, their gains in the feed lot, and other factors upon the grade of beef produced by such cattle. In certain respects this new information makes possible the control and measurement of these effects on a very definite basis.

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Results with Steer Calves

In these studies data have been obtained on a large number of cattle of different ages, weights, and sexes. One group of 441 feeder steer calves, weighing 400 pounds and up when they were started on the finishing ration, has furnished results of particular interest.

The calves were graded as feeders, again at the close of the finishing period as slaughter cattle, and finally as dressed carcasses. They were graded individually according to a standard method taking conformation, finish, and quality into account. The work was done by a committee of three trained men. The feeder-cattle grades used were Fancy, Choice, Good, Medium, Common, and Inferior; the slaughter-cattle and carcass grades were Prime, Choice, Good, Medium, Common, Cutter, and Low Cutter.

The 441 steer calves graded as follows: 51 Fancy, 261 Choice, 106 Good, and 23 Medium. The average initial weights were about 500 pounds. The feed-lot gains made by the steers were studied in connection not only with the feeder grade but also with the resulting slaughter-cattle grade and the carcass grade of each animal. Though it is possible to determine the different grades of carcasses in the live slaughter animal with a high degree of accuracy, carcass grade is naturally a more direct measure of the quality of beef, and there is evidence that normally the carcass grade is judged with greater accuracy than the slaughter-cattle grade.

In the group of steers studied the animals that graded the lowest as feeders required the least gain to produce a corresponding carcass grade. The Medium-grade feeders produced Medium carcasses after gaining approximately 185 pounds. The Good calves produced Good carcasses, and the Choice calves Choice carcasses after gaining approximately 270 and 380 pounds, respectively. The Fancy feeders, though gaining a maximum of 471 pounds, did not produce Prime-grade carcasses.

A study was made also of the different quantities of gain required by the various grades of feeders to produce a particular grade of carcass. It was necessary for Good steers to make gains of about 460 pounds in order to produce Choice-grade carcasses. The Choice steers, however, produced Choice carcasses after making gains of about 380 pounds, while Fancy feeder calves produced Choice carcasses with 310 pounds of gain. Thus the higher the grade of feeder the less increase in weight is needed to produce a carcass of a given grade.

Another important finding of this investigation was that at any given gain the spread in average carcass grades tended to be less than the spread in the grades of the cattle as feeders. For instance, there is a difference of three grades between Medium and Fancy feeder cattle. When the cattle of these grades gained 325 pounds the range of differences in the resulting carcasses was only 1.2 grades. As the quantity of gain increased the difference in carcass grade between the Good and Choice feeders tended to become less. In fact, after about 400 pounds' gain the carcasses of Good steers graded almost as high as those of the Choice cattle. The steers graded as Fancy were the only ones showing indications of ability to produce carcasses of highest grade.

Importance of Finish in Carcass Grades

The results of this investigation showed also that all grades of feeder cattle as a rule would produce relatively low-grading carcasses if slaughtered early in the fattening period. This is because of lack of finish, which is one of the most important factors of carcass grade. The results indicated that when steers made low feed-lot gains, the lower grade feeders lost less in carcass grade than the higher grading feeders. For example, if a typical Medium feeder steer is slaughtered after gaining 200 pounds in the feed lot, the carcass may be expected to grade about 0.4 of a grade lower than the feeder. Under similar conditions the carcass of a Good steer calf would decline about 0.9 of a grade, and that of a Choice calf about 1.4 grades. Consequently, the higher grading feeders should be fed for at least moderate gains if advantage is to be taken of their potential ability to produce high-grade beef.

An analysis of similar data obtained in the feeding and slaughtering of more than 2,000 cattle varying widely in age, weight, grade, and length of fattening period, has shown that feeder grade and total gain in the feed lot had approximately equal influences on the grade of the carcasses.

Further analysis of steer-calf data has shown that variation in initial weights within a feeder grade influences the grade of carcass to some extent though not so much as the influence of grade and of feed-lot gain. In general, the heavier the animal when placed on feed the higher was the grade of carcass when gains were equal. A rapid gain appeared to be favorable to a higher grading carcass, though this factor also was a comparatively minor one.

In the results outlined, cattlemen have a basis for conducting feeding operations in a manner that enables them to control to a high degree the grade of slaughter animals and their carcasses. The grade of feeder cattle and the quantity of gain are major influences. The weight of feeders and the rate of gain, though less important, deserve consideration and attention. By taking all these influences into account cattlemen may judge with reasonable accuracy the results to expect under a given set of conditions.

O. G. HANKINS, *Bureau of Animal Industry*, and
L. B. BURK, *Bureau of Agricultural Economics*.

BIRD Species Not Menaced by Local Control Campaigns Rightfully alert to dangers threatening birds, nature lovers have been alarmed by certain reports on the results of control measures. Some of these reports have been misleading, however. In the first place some bird control is necessary and will be carried on regardless of sentiment or regulations. Recognition of the right of defense against serious depredations by any animals, including birds, is unavoidable. Individual defense against serious depredations is always justifiable, and local cooperative efforts may be. The larger the scale of cooperation, however, the more the public interest is involved and the more debatable the procedure. No large-scale operations for bird control are planned by the Bureau of Biological Survey, and no general campaigns have ever been approved. Hence, so far as Federal participation is concerned, bird lovers need not be disturbed over dangers of highly organized schemes of bird control.

The necessity for some control, however, is generally admitted. Losses from birds exist in every degree, from those of trifling consequence—which although of almost universal occurrence are equally finish, which is one of the most important factors of carcass grade. The results indicated that when steers made low feed-lot gains, the lower grade feeders lost less in carcass grade than the higher grading feeders. For example, if a typical Medium feeder steer is slaughtered after gaining 200 pounds in the feed lot, the carcass may be expected to grade about 0.4 of a grade lower than the feeder. Under similar conditions the carcass of a Good steer calf would decline about 0.9 of a grade, and that of a Choice calf about 1.4 grades. Consequently, the higher grading feeders should be fed for at least moderate gains if advantage is to be taken of their potential ability to produce high-grade beef.

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The necessity for some control, however, is generally admitted. Losses from birds exist in every degree, from those of trifling consequence—which although of almost universal occurrence are equally widely condoned—to those that can be estimated only in very large sums, or are even so serious as to compel the abandonment of industries in areas where, aside from the presence of crop pests, conditions may be particularly suited to them. Many examples of serious damage are on record and could be cited, but the present purpose is to discuss the character and the effects of control methods.

Preventive and Aggressive Measures

All of us prefer measures of the preventive type that do not involve death to the birds, but such methods are not always feasible. As a rule frightening devices (scarecrows and the like) are effective only when novel; familiarity with them soon breeds contempt. Other preventive methods that have been used include tarring seed grain, planting it too deeply to be readily dug out by birds, covering a few trees or small berry patches with bird-excluding netting, choosing early or late-maturing varieties with relation to their susceptibility to bird damage, harvesting early, or otherwise varying farm practices to minimize bird depredations.

Often none of these devices avail, and aggressive measures are in demand. "Bird-minding", or the patrolling of areas and shooting at the birds or otherwise frightening them, usually with only a little actual killing, has long been practiced, but is not always effective. Shooting at birds that destroy small fruits involves perhaps the next greater degree of control. Some species, as robins, are unwary and, to be controlled locally, must be practically shot out; others, as starlings, are wary and soon avoid a dangerous area. Shooting, however, is expensive, both in labor and materials. Trapping has been little employed, except against birds of prey and English sparrows, and its possibilities are little known in connection with destructive birds in general. It is clear, however, that on large areas the methods thus far mentioned are so impracticable or prohibitively expensive that they will not be used. Use of poison baits is the next resort, and this method has the advantages of relative cheapness and greater possibilities of economical application to large areas.

Control Sometimes Impracticable

Often control measures are not economical and hence are not attempted. There may be other circumstances also that render bird control impracticable. In illustration it may be recorded that though investigations of crow depredations in Oklahoma confirmed reports of vast numbers of crows and of serious damage done by them, they revealed so great an abundance of food in unharvested crops, shocked cereals, and pastured grainfields, that all parties concerned agreed that an effective control campaign was impossible and that recourse must be had to alterations in farm practice.

Bird control, it must be concluded, is a self-limiting activity. On a small scale it is unnecessary; on a large scale it is impracticable. In the intermediate categories, economics will rule in the long run, and in a large proportion of cases, so far as can now be foreseen, control will be prohibitively expensive. Furthermore, bird control does not ordinarily affect the species that are favorites with bird lovers. No control is needed for wrens or bluebirds, chickadees or warblers, swallows or phoebes. Most of the familiar species that the ornithophile has in mind when he thinks of birds are never involved in control operations. The only notable exception is the robin, and the universal abundance of the species shows that it has not been injured by control operations.

Few Species Require Extensive Control

In its entire history the Biological Survey has found it desirable to publish instructions for control of only certain hawks and owls, crows, magpies, pinyon jays, starlings, blackbirds, and English sparrows, and the whole list of birds involved in control operations anywhere in the United States is scarcely as long again. The general policy of the Bureau is to hold bird-control work to a minimum. In each case study of the situation in the field, development preferably of preventive methods, or, if necessary and possible, the setting up of aggressive control measures, with subsequent dissemination of information on the results obtained, are held to fulfill the Bureau's obligations. Large-scale control campaigns and far-reaching extension projects are not contemplated. The underlying principle recognized is that economic problems involving bird life are characteristically local and that means of adjusting them must vary with, and should be confined to, the localities where needed. In making adjustments of wild-life relationships for economic reasons, we should do whatever is required, but no more.

The charges of wholesale destruction of birds in control campaigns in most cases are entirely unfounded, and there are practically no instances of indiscriminate slaughter of birds of all kinds.

A little reflection should lead to the conclusion that there is small cause for uneasiness as to the results of bird-control operations in general. This is true not only because of the various limiting factors already discussed, but further because bird control in the last analysis almost always is strictly a local action against an abundant and usually also a widespread species. It is the very factor of overabundance of birds that brings on damage and the ensuing efforts at control. The insignificant effect of these efforts upon the total bird population is evident on every hand.

The foregoing applies to the general run of control measures based on economic reasons, directed against highly vegetarian species of birds. It does not apply to bounty systems, side hunts, and other organized onslaughts against the larger predatory birds, none of which has ever had the approval of the Bureau of Biological Survey. These constitute warfare, not control, and because of the long-continued intensity of such campaigns and the smaller number of the birds against which they have been directed, the results in some cases have been disastrous.

Existence of Widespread Species Seldom Threatened

No such campaigns, however, have been waged against any of the species of either seasonal or almost year-round vegetarian-feeding habits. Consider for instance the linnet, or house finch, which was the most destructive bird in California in the seventies and eighties, when horticulture was just getting established there. The Pacific Rural Press of those years teems with references to the destructiveness of this bird. It was shot, poisoned, destroyed in every way the growers could think of, and it has been fought ever since. Today, after more than 60 years of such treatment, it is still the most destructive bird of the State. What is more, the aggressive actions against it so far as known have not depleted any associated species.

The crow in the East has been fought for more than 200 years. Since colonial times it has been outlawed, and shot and poisoned at every opportunity. Nevertheless it has maintained its numbers and steadily spread westward. It has accompanied its enemy man, persisted in spite of him, and increased with his increase. Similarly in the Old World, rooks and house sparrows are still abundant, though persecuted for ages.

The story of the bobolink, reedbird, or ricebird, most nearly epitomizes "control" of abundant species of largely vegetarian proclivities. The rice industry that developed on the South Atlantic coast was located directly in the migration path of bobolinks, through which the birds funnelled from a range almost continental in width. In myriads they took enthusiastically to the rice, and for more than a hundred years they were fought unceasingly in every imaginable way. Now the rice industry of that section has been ended by western competition, but the birds remain. The bobolinks traverse their accustomed migration path, as did their ancestors for ages before them, serenely unaware that there ever was such a thing as bird control.

Efforts at bird control are exceptional indeed if they succeed well enough to justify their name; and seldom do they develop into threats against the existence of species. So long as suitable range exists for a widely distributed bird, local action against it is not to be feared, and bird control practically always means local action against an abundant species. If suitable range ceases to exist, because of human occupation or the destruction of necessary environmental factors, nothing can save the species affected. Only to this trouble, largely an incurable one, and not to bird control, can be properly traced certain of the regrettable cases of impairment of our avifauna.

W. L. McAtee, *Bureau of Biological Survey.*

BLISTER Rust Control Program Gives High Degree of Protection

Three particularly cogent reasons of an economic nature have been advanced in justification of the program to protect western white pine from white pine blister rust. The destruction of these pines would (1) destroy community values in the region, (2) destroy the timber value upon which important regional industries are based, and (3) very possibly destroy the lumber values of all soft pines for a temporary period because of the rapid exploitation of western white pine as it becomes immediately threatened by the rust. The third of these possibilities is a very real one and for the period of its duration would seriously dislocate the lumber market and values of the entire country as well as of the particular region. The progress of the blister rust control program in the "Inland Empire" region, technically directed by the United States Department of Agriculture and jointly financed by Federal, State, and private funds, has now reached a scale of performance and a degree of efficiency that largely dissipate this threat. Owners of western white pine timber who might possibly be led into unduly rapid exploitation of their timber resources through fear of loss occasioned the State. What is more, the aggressive actions against it so far as known have not depleted any associated species.

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Since the inception of the blister rust control program in the "Inland Empire" approximately 451,000 acres of white pine bearing lands have been cleared of wild currant and gooseberry plants. These plants are the alternate hosts of the disease, and without their presence the rust cannot spread from pine to pine. Of this total area, 231,000 acres had been worked over prior to 1933. During 1933 approximately 165,000 acres were worked over through the operation of the Civilian Conservation Corps, while the work on the remaining 55,000 acres was financed from regular appropriations of the Department and from allotments from the Federal Public Works program. The projected application of Public Works funds to this project during 1934 should result in the protection of several hundred thousand additional acres of white pine land. By the end of the summer of 1934 it is expected that approximately three fourths of a million acres of white pine land out of a total of 2½ to 3 million acres will have been worked over for the first time.

High Degree of Protection Obtained

Field studies in areas in which the disease occurs and from which these wild currant and gooseberry bushes have been removed show that this process results in a satisfactorily high degree of protection to the pine. In numerous cases further spread of the disease to healthy pines has been entirely stopped by the eradication of these alternate hosts.

The combination of continued progress in the control program and technical assurance that the work is resulting in pine protection will permit owners of white pine timber to continue their lumbering operations at a normal rate without fear of sudden loss from blister rust. A long-range program of white pine silviculture on the areas naturally suited to it, combined with a similar long-range program for the control of its chief enemy, the blister rust, is at this time not only to be desired and recommended but also appears to be absolutely imperative.

STEPHEN N. WYCKOFF, *Bureau of Plant Industry.*

BUTTER Quality Higher In Tennessee Following Educational Campaign

A much-desired improvement in the quality of Tennessee creamery butter has resulted from the educational work conducted during the last 9 years by the Bureau of Dairy Industry and the Agricultural Extension Service of the University of Tennessee.

Just before this "efficiency and quality campaign" was started, in 1924, a survey of existing conditions revealed the fact that the herds were small (4 to 7 cows) and that they were in the hands of inexperienced dairymen. Dairy farms were few and far between, and there were few if any facilities on the farms for the care of milk and cream. The temperature of the water supply averaged about 60° F.

Creameries were inadequately equipped and in a majority of cases managed by operators with no technical training and little if any practical experience. The butter manufactured was of very poor quality, 90 percent of it grading about 87 or 88. Samples of butter collected by the rust are now able to secure from the Department information that will assure them that no such action is necessary.

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Creameries were inadequately equipped and in a majority of cases managed by operators with no technical training and little if any practical experience. The butter manufactured was of very poor quality, 90 percent of it grading about 87 or 88. Samples of butter collected from the creameries of the State showed an average fat content of 82.62 percent, whereas the Federal standard required only 80 percent fat. Allowing a standard of 80.5 percent fat as a margin of safety, 82.62 percent fat represents a loss to the creameries of 2.12 pounds of fat or 2.61 pounds of butter for each 100 pounds of butter manufactured. Valuing this butter at 43 cents per pound, this lack of manufacturing efficiency cost the creameries of the State $128,650 during 1923. Processing and manufacturing methods were found to be on about the same low levels as that of composition control.

With the beginning of the campaign in May 1924, a uniform standard of cream grading was inaugurated in one of the leading cooperative creameries in the State, the cream all being paid for on the basis of the following grades, with a differential in price of 3 cents per pound of fat between each grade.

Premium grade—clean in flavor and not exceeding 0.20 percent acidity.
No. 1 grade—clean in flavor and between 0.21 and 0.40 percent acidity.
No. 2 grade—unclean in flavor or/and exceeding 0.40 percent acidity.
Onion grade—cream having onion flavor.

When the grading work was first started in this cooperative creamery less than 10 percent of the cream received was of Premium grade, and not more than 25 percent was No. 1 grade.

Meetings of cream producers were called, and methods of producing and caring for cream on the farms were discussed, and for a short period a field man from the Bureau of Dairy Industry visited the dairy farms and assisted cream producers in preparing cooling facilities and instructed them in the proper care of cream.

Program Immediately Successful

Within a few months this creamery was marketing a good percentage of its butter at from 3 to 5 cents per pound above prices it would have received if the quality-improvement campaign had not been started. The increased price received for butter was passed on to the producers in the price paid for butterfat, and this creamery led the State in prices paid for fat for a number of years. The success of the quality improvement in this creamery attracted the attention of creameries and cream producers in other sections, and similar attempts to improve the quality were made in every section of the State. The response by creamery operators and cream producers was very fine and proved profitable to the producers.

During 1932 more than 90 percent of the cream received by local creameries in Tennessee was graded and purchased on a basis of acidity, flavor, and odor. In creameries using cream purchased through cream-buying stations the method of grading on flavor and odor was hardly practical, and for this group a method of classifying and paying for cream on a basis of age had been adopted, the age classifications being cream 2 days old, 4 days old, and over 4 days old. Approximately 99 percent of the cream purchased in the State was graded and paid for in accordance with one of these two methods, there being only 2 or 3 very small creameries that did not grade and pay on a quality basis.

Cream producers in general cooperated liberally in the quality-improvement work. A few were skeptical, however, and very few appreciated the importance of thorough sterilization of equipment and effective cooling and frequent delivery of cream if high-grade butter was to be produced. The Bureau specialist spent many days on the cream-receiving platforms, explaining in detail methods of producing and caring for cream on the farm. The Bureau specialist also inaugurated a project in which home demonstration agents conducted demonstrations covering the care of milk and cream and the manufacture of butter, cheese, and cottage cheese on the farm. More than 8,000 women club members received instructions in the care of milk and cream through these meetings.

Butter Higher in Quality

Five local creameries that have cooperated in the quality-improvement work and adhered more closely to the uniform standard of grading, received, in 1932, a total of 2,381,431 pounds of butterfat, from which 2,949,213 pounds of butter was manufactured. This butter, scoring 89 and 90, was at least 2 points higher than the butter made previous to the campaign, which scored 87 to 88. The spread in price on the Chicago market between grades of butter that scored 88 and 90 averaged 1.16 cents a pound for 1932. This increased price of 1.16 cents per pound on the 2,949,213 pounds of butter manufactured in 1932 indicates an added income for the year of $34,210.87 to these five creameries as a result of improving the quality of their butter.

The percentage of each grade and the average price paid for fat by the five creameries in 1932 were as follows:

Premium grade, 18.363 percent, 21.637 cents per pound.
No. 1 grade, 76.262 percent, 18.100 cents per pound.
No. 2 grade, 4.802 percent, 14.376 cents per pound.
Onion grade, 0.573 percent, 12.312 cents per pound.

As a part of the quality-improvement campaign monthly educational butter scorings were held at local creameries over the State, where the operators of various creameries gathered for discussion of grading and manufacturing problems. Each operator sent or brought samples of his butter to these meetings. The samples were examined and graded by the Bureau specialist, defects were discussed, and methods of avoiding such defects were explained to the operators. The composition of each sample was determined, and the methods of analysis were demonstrated, with the result that each creamery was provided with equipment so that the operators themselves could check the composition of each churning. Following these meetings, the Bureau specialist visited the individual creameries, assisted in cream grading, and demonstrated the methods of quality improvement and composition control in the manufacturing process.

As a result of these monthly educational scorings and the individual demonstrations and short courses held at the University of Tennessee, which a large number of creamery operators were induced to attend, the creamery operators have become very efficient in their work. The average fat content of butter now more nearly conforms to the Federal standard, and they are able to manufacture a higher grade of butter from the same quality of cream.

Results at Butter-Scoring Contests

A number of Tennessee creamery operators exhibited samples of butter at butter-scoring contests in 1932. While these samples do not represent the average quality of butter manufactured, they do reflect the general improvement in quality, and they also show the skill of the operator in selecting high-quality cream and his ability to make butter of fancy quality. At the Midsouth Fair at Memphis in 1932, 11 entries from Tennessee received an average score of 92.07 points, while 29 entries from 10 other Southern States received an average score of 89.94 points.

In the Tennessee master buttermaker's contest the man whose butter receives the highest average score in 1 southern and 4 national contests is designated the master buttermaker for that year. The highest average score of the seven contestants in 1932 was 93.3 and the lowest 92.38.

The excellent keeping quality of Tennessee butter and the buttermaker's ability to select cream of excellent quality, and his manufacturing efficiency is reflected in the seven samples entered by Tennessee buttermakers in the master buttermaker's contest at a national butter contest at Mason City, Iowa, in 1932. These entries received an average score of 92.69 points when fresh and 93 points after 3 months in storage.

In this same cold-storage contest one of the old dairy producing States had 154 entries, which received an average score of 92.88 when fresh and 92.77 after 3 months in storage. Another had 101 entries with an average score of 92.77 when fresh and 92.51 after storage. A third had 44 entries with an average score of 93.14 when fresh and 92.90 after storage.

Tennessee butter, a large percentage of it grading 90 to 92, is today stimulating an increased consumption of butter in the Southern States and is replacing much of the very low-grade butter that was formerly dumped on this market, and in the eastern market a trade has been developed that demands Tennessee butter, affording a very satisfactory market.

As a result of this campaign through the splendid improvement in manufacturing efficiency by creamery operators and their earnest efforts in cooperation with cream producers of the State in quality improvement, Tennessee received nearly $250,000 additional income in 1932 for butterfat marketed through its creameries.

L. S. Edwards, *Bureau of Dairy Industry.*

CASEIN Manufacturing By New Methods Cuts Costs, Improves Product

The manufacture of commercial casein is of increasing importance to the dairy industry because of the great quantities of skim milk available for processing daily in dairy-products plants, particularly during the period of greatest milk production. Prior to 1931 more casein was imported than was produced in the United States, but since the increase in the tariff rate in June 1931 from 2½ cents a pound to 5½ cents, casein imports have been small. However, conditions may develop which will again favor the importation of casein.

There are products which have been used as substitutes for casein, and others may be developed. It is known, for instance, that the soybean contains protein material which resembles casein and that, like casein, this protein has been used in the manufacture of glue and plastics. In fact, soybean milk is similar in many respects to cow's milk. Starch has also been used as a substitute for casein and market conditions may develop which will cause it to displace casein operator in selecting high-quality cream and his ability to make butter of fancy quality. At the Midsouth Fair at Memphis in 1932, 11 entries from Tennessee received an average score of 92.07 points, while 29 entries from 10 other Southern States received an average score of 89.94 points.

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The Bureau of Dairy Industry has interested itself in the many problems of the casein-manufacturing industry, and in a number of instances has helped to bring about the development of new or improved equipment, the advantages of which will be apparent from a comparison of the new mechanical or continuous processes with the so-called "old hand" or "batch methods."

In the old hand or batch methods skim milk in rectangular vats is warmed, during agitation by the operator, to the desired setting temperature, and a culture of lactic-acid-producing bacteria is added. The properties of this culture or starter may vary greatly, but in any event its primary purpose is the same, namely, to bring about fermentation with subsequent coagulation of the skim milk. The coagulum is broken up and the resulting pieces of curd, following heating while being stirred with a rake, shrink and settle out, and are separated from the whey by draining the whey from the vat. Water is then added to the curd, the mixture is stirred, the wash water is drained away, and the curd shoveled into a suitable cloth in which it is pressed with the aid of a screw-type press. Pressure is usually applied overnight. Following the removal of the curd from the press, it is shredded and spread on trays. The trays are placed on trucks, which are then wheeled into tunnels where the curd is dried by means of a current of hot air. This part of the process usually requires 7 hours. On removal from the drier, the casein may be ground and bagged, or it may be shipped unground.

It will be seen from the foregoing outline of the customary manufacturing process that much manual labor is required and the process is not completed until the afternoon of the day after the skim milk is available.

New Methods for Reducing Costs

A few of the largest and more progressive casein manufacturers have developed improved methods whereby operating costs have been reduced, while at the same time the product has been improved. Facilities are now in use which make it possible to process large quantities of skim milk with the services of only two men. The isolating, washing, and pressing steps are continuous and automatic and require but a few minutes. The pressed curd is shredded and passes mechanically to a drier, which may be either the continuous revolving drum or the sectional conveyor type whereby the curd is dried in from 30 to 60 minutes. It is believed that the completion of the casein manufacturing process in a short time is desirable because it tends to result in a superior product.

The development of methods which will contribute further to the production of commercial casein at less cost and in a more uniform manner is possible and desirable. The cost of this equipment should be such that the average casein manufacturer will buy it.

R. W. BELL, *Bureau of Dairy Industry*

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CHANCE Tree Hybrids of Fast Growth Inspire Timber-Tree Breeding

Along the north side of Lafayette Square, in the city of Washington, near its Madison Place end is a row of five majestic elm trees, much taller than any other trees in the square. These elms have reached their present dimensions notwithstanding their situation between the sidewalk and the street, with a 75-foot sheet of concrete to the north of them and a 20-foot strip to the south. These trees have a strange history. They were propagated from the English elm, a tree that has been grown for centuries in England, and which there sometimes reaches the imposing height of 140 feet and the diameter of 8 feet. In the opinion of the eminent authority on British trees, Augustine Henry, the English elm is an accidental hybrid between two species of elm native in England, the Scotch elm and the smooth-leaf elm, both of which it greatly exceeds in size. Its original vigor is maintained through propagation by rooted suckers, not by seeds. The location of the original tree from which the Lafayette Square specimens were propagated is unknown.

In Great Britian there is another amazing tree known as the cricket-bat willow. It grows to a height of 100 feet and a diameter of 5 feet. From the wood of this willow the English make cricket bats, just as we in the United States make baseball bats out of white ash. This willow is propagated by cuttings, and only the female trees are known. All the present trees undoubtedly were propagated from a single original plant. Without question Elwes and Henry are correct in their conclusion that this tree is a natural accidental hybrid. It grows faster than any other English willow.

In California the Persian walnut, sometimes called the English walnut, does not thrive when grown on its own roots. It has therefore become the practice to graft it on the Hinds walnut, a species native to California and adapted to both its soil and its climate. Occasionally one of the grafts fail, and a sprout from the stock grows up and becomes a tree of the native species, surrounded by trees of Persian walnut. In the pollination of walnut flowers, the pollen is carried by the wind. By accident the wind sometimes cross-pollinates one of these native walnuts with the Persian walnut. A nut resulting from one of these accidental pollinations does not differ in appearance from other nuts on the same tree; but when such a nut germinates and grows into a sapling, it not only shows by its foliage that it is a hybrid, but it possesses astonishing vigor, far greater than that of either parent. It has been recorded that one of these so-called "Paradox hybrids" at Yuba City, Calif., was 99 feet high and 5 feet in diameter when it was credited with an age of about 40 years.

On Rowe Farm, Charles City County, Va., on the north bank of the James River, midway between Richmond and Williamsburg, grew an immense walnut tree, which in 1914 was almost 10 feet in diameter at 4 feet from the ground. It was identified by botanists as a hybrid between the black walnut, which is native there, and the Persian walnut, which had been introduced from Europe by the early colonists. Presumably the tree grew from a nut of a Persian walnut tree which had been accidentally pollinated by a black walnut. In 1928 the hybrid tree was cut for its wood. Even its roots were dug and sold. The especially regrettable thing about it is that, so far as is known, no propagation material of this tree was saved.

At Dunkeld, Perthshire, Scotland, were planted a few trees of the Japanese larch, *Larix leptolepis*, grown from seeds that were sown in 1885. Near them are many trees of European larch, *L. europaea*. From seeds produced on these Japanese larches as early as 1904, and clearly the result of accidental wind-pollination between the two species, were developed trees that grew very much faster than either parent. One lot of these Dunkeld hybrid larches averaged 29 feet in height at the age of only 8 years, an astonishing vigor of growth in a larch.

The lesson conveyed by these accidents of nature is that if we take up the breeding of timber trees and pursue it intelligently we shall be able to do on a large scale what nature has done only rarely. Systematic experiments in the cross-pollination of timber-tree species may be expected to yield many hybrids that grow much faster than either parent. When such results have been demonstrated by experiment, and a forest planting is to be made, the advantage of using fast-growing hybrids is manifest. If, for example, a hybrid between two of our best lumber species of the white pine group will produce trees of full timber size in 50 years instead of the customary 80 years, the owners can cut their trees and liquidate their investment at the end of 50 years, and at the end of 80 years can have a second stand of timber three fifths grown.

Tree-Breeding Experiments Few

Intentional experiments in the improvement of timber trees by breeding are few. Stout, at the New York Botanical Garden, has bred poplars that in one summer have made 8-foot sprouts from the stumps of 1-year-old rooted cuttings. At the Institute of Forest Genetics, Placerville, Calif., Austin and Wrighter are carrying on experiments in tree breeding that give great promise of valuable results.

Although the production of tree hybrids should be begun with small-scale experiments, their production on a large scale undoubtedly will be found to be feasible. Hand-pollination on a small scale can be followed by tent-pollination, especially if it is found that the individual tree is sterile to its own pollen, as is true of many other plants. And experiments may show that valuable hybrids may be produced at small expense by the simple expedient of planting isolated trees of one species in plantations of another species.

One of the members of the National Arboretum staff has bred the wild blueberry from the size of birdshot or buckshot to a diameter of more than an inch, an accomplishment which at the beginning would have been unbelievable. Another member of the Arboretum staff, in a series of experiments, crossed the swamp magnolia with the southern magnolia. The hybrids have grown much faster than seedlings of either parent. A computation made in the spring of 1933 showed that the hybrids had produced 2½ times as much wood as one parent and 8 times as much as the other.

It is well known that successful plant breeding requires intelligence and skill, and it is believed that the requisite skill and intelligence are available for the breeding of timber trees.

The time has come when the interest of forest development in the United States requires systematic and extensive experiments in the production of faster growing timber trees. It is an almost untouched field of research and accomplishment. The necessary experiments can be begun as soon as the National Arboretum is put on an operating basis.

FREDERICK V. COVILLE,
Acting Director, National Arboretum.

CHEMICALLY Treated Bands Effectively Aid Codling-Moth Control The successful culture of the apple in the United States is dependent upon the surmounting of many obstacles, one of the most serious of which is injury by the codling moth or apple worm. This insect, in its larval or worm stage, eats its way into the apple and consumes much of the flesh, rendering the fruit practically worthless for commercial purposes.

As early as a century ago fruit growers discovered that the codling moth could be partly controlled by trapping the larvae in bands applied to the trunks of apple trees; prior to the use of poisonous sprays, banding was the only practical means of reducing the infestation. The bands were usually made of straw or rags.

The codling moth lays its eggs on the leaves and fruit during the growing season. After hatching, the larvae seek the fruit for feeding, and when mature they usually spin their cocoons under the loose bark of the trunk and the larger limbs. The fruit grower takes advantage of this habit by scraping off the loose bark and applying a band which serves as an attractive place for the spinning of these cocoons.

By using suitable banding material and scraping the trees well, it is possible to capture from 40 to 50 percent of the worms that have fed within the fruit. In order to prevent the emergence of moths, however, it has been necessary to "hand-work" the bands at intervals of from 1 to 2 weeks during the summer. This operation involved the removal of the bands from each tree and the mechanical killing of the worms that had cocooned in contact with them. Cloth bands were sometimes run through a clothes wringer, and those larvae that remained attached to the trunk were crushed with various types of blunt instruments.

The destruction of codling-moth worms by hand is still practiced by many orchardists, especially in regions favorable to the codling moth, as a supplement to control by spraying.

Banding would undoubtedly have been more widely practiced in the past had it not required so much hand labor. The chemically treated band, a recent invention of the Bureau of Entomology, eliminates much of the labor involved in orchard banding, as it automatically kills the worms that spin cocoons in contact with it.

In order to make such a self-working band practicable, the chemicals to be used had to meet certain requirements. They had to kill the worms by contact and yet be noninjurious to the tree; they had to be cheap, readily applied, insoluble in water, and adhesive to resist washing by rain; they had, likewise, to be sufficiently nonvolatile to prevent too-rapid loss by evaporation; furthermore, it was necessary that they be nonrepellent to the larvae.

Effective Chemicals Found for Banding

After considerable experimentation it was found that a mixture of beta-naphthol (technical grade) and lubricating oil (red engine type) fulfilled all these requirements, and a band treated with these materials of research and accomplishment. The necessary experiments can be begun as soon as the National Arboretum is put on an operating basis.

FREDERICK V. COVILLE,
Acting Director, National Arboretum.

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Effective Chemicals Found for Banding

After considerable experimentation it was found that a mixture of beta-naphthol (technical grade) and lubricating oil (red engine type) fulfilled all these requirements, and a band treated with these materials is now available. The band is tacked to the tree trunk early in the spring, and is effective without further attention for the entire season.

The bands are prepared by coating strips of single-face corrugated paper with beta-naphthol and oil. Strips of burlap or cheesecloth were used in the earliest experimentation with the self-working bands, but it was found that in such bands the chemicals caused injury to the tree. The corrugated-paper bands provide less contact with the tree trunk and afford greater opportunity for air circulation than cloth bands, and are safe to use on bearing trees old enough to have developed rough bark. The corrugated paper is now cut by the manufacturer into rolls 250 feet long and of any desired width, usually 2 to 4 inches. Thus, by dipping a roll of corrugated paper in either a hot solution or a cold especially prepared mixture of beta-naphthol and oil, 250 feet of treated band material can be quickly made.

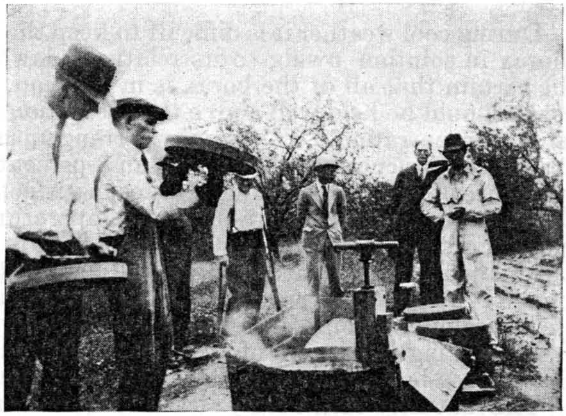

FIGURE 32.—Demonstration of method of making chemically treated bands on a commercial fruit farm.

Orchardists are now making bands at a cost, exclusive of labor, not exceeding 1 cent per linear foot for a 2-inch width. These bands are also being offered commercially at a somewhat higher price.

Chemically treated bands are now widely used by fruit growers, and it is expected that the practice will be considerably extended from year to year. A recent survey has shown that one third of the bearing orchards in one of the fruit districts of the Pacific Northwest are now equipped with treated bands.

E. H. SIEGLER and F. MUNGER,
Bureau of Entomology.

CITRUS Fruit Resists Stem-End Rot Better By Newer Borax Treatment

Stem-end rot is one of the major forms of decay of citrus fruits produced in humid areas, oranges being especially susceptible. It results from infections that occur while the fruit is still on the tree. The sources of this infection are in dead twigs, from which the rot-producing organisms are spread by dew drip and rain spatter.

Although this rot can be lessened by spraying and pruning, there are no economical control measures that can be employed while the fruit is on the tree. The rate of advance of the fungi into the fruit depends upon the maturity of the fruit and other conditions. During the early part of the shipping season the fruit is less subject to rapid development of stem-end rot than later, but dead-ripe fruit rots very rapidly.

Ordinarily there are no visible signs of infection at the usual harvest time; hence even by the most careful inspection during the packing operations it is impossible to cull out all of the infected fruits.

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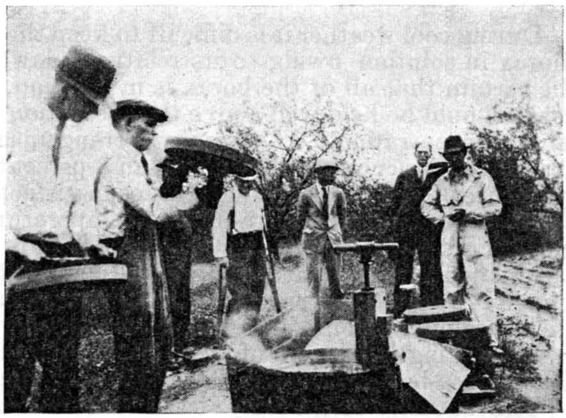

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Ordinarily there are no visible signs of infection at the usual harvest time; hence even by the most careful inspection during the packing operations it is impossible to cull out all of the infected fruits.

After harvest, spoilage from stem-end rot may be accelerated greatly by unfavorable coloring-room conditions such as insufficient ventilation, inadequate circulation, or too much coloring gas, as well as by allowing too much time to elapse between harvesting and getting the fruit under refrigeration.

The most effective method of reducing stem-end rot is to dip the fruit in 8-percent borax solution as soon as practicable after harvest. In recent investigations of the United States Department of Agriculture the borax treatment was found to be much more effective when given as the fruit arrives at the packing house than when delayed until after the usual coloring treatment, as is the customary commercial practice.

Heating the Borax Bath

During cool weather it is difficult to keep the proper concentration of borax in solution, owing to its relatively low solubility. In order to be certain that all of the borax is in solution, the temperature of the bath should be held well above the saturation temperature for the desired concentration. This requires arrangements for heating the borax bath. Experience has shown that an 8-percent solution used at a temperature of 100° to 110° F. gives most satisfactory results. It has also been shown that for best results the temperature of the rind of the fruit should not be lower than 90° when the fruit is treated, since otherwise an inadequate amount of borax will adhere to the fruit. This may make it necessary to warm the fruit before treating it in cold weather.

This modification of the borax treatment was put into commercial usage during the season of 1931–32, and hundreds of carloads of fruit have since been treated, with satisfactory results.

The maturity of the fruit at the time of treatment is a factor in the effectiveness of the borax bath in controlling stem-end rot. With the fruit commonly shipped to market, there is usually from 3 to 5 times as much decay in the untreated fruit as in that receiving the borax treatment on the day it is picked. However, the same treatment is not markedly effective in checking decay in dead-ripe oranges.

In very warm weather the borax treatment alone should not be depended upon to reduce stem-end rot in fruit that is especially liable to this decay. Such fruit should also be packed as quickly as possible and placed in precoolers or iced cars and sent to market without delay. The merchant, and the consumer as well, can reduce losses from stem-end decay by holding citrus fruits at temperatures below 50° F. This low temperature not only retards decay but prolongs that fresh-from-the-tree flavor.

John R. Winston, *Bureau of Plant Industry.*

CORN-HOG Production-Control Program Follows Emergency Purchases

Production of hogs as well as the production of livestock and livestock products has been maintained at predepression levels during the last 4 years. This production has been maintained in the face of circumstances that ordinarily would be expected to result in a sharp curtailment of production. Three of the last five corn crops have been among the shortest in a quarter century. The market for American hog products abroad has been greatly reduced by the decline in the purchasing power of foreign consumers and the erection of higher and higher trade

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Need for Collective Control of Production

Farmers acting as individuals cannot control output in order to increase prices for the products they have to sell. Agriculture is made up of several million independent producers, each competing with the other. The production of each farmer is such a small part of the total that a decrease on any one farm or on several farms has no effect on the price of the product. Furthermore, the farmer cannot discharge his "labor" in order to reduce expenses and curtail production, because on most farms the labor supply is made up of the farmer and his family. In fact, this labor supply has been increased on many farms by the return of relatives who have lost their jobs in the city.

Production of industrial goods, of articles farmers buy, on the other hand, has been sharply decreased since 1929, and only during the last year or so has there been any indication of recovery. Industrial producers have reduced both the number employed as well as wages in order to cut expenses and to limit production in line with prevailing demand at home and a foreign market that has almost ceased to exist. These unemployed millions are not in position to consume the same quantity of livestock products as when they were receiving regular wages. As a result, the livestock producer has lost an important part of his American market as well as most of his foreign market.

The depression has forced farmers to maintain or increase agricultural production, while at the same time manufacturers have been compelled to curtail industrial production. If the farmer could trade his surplus of hogs for a surplus of automobiles, farm machinery, furniture, etc., there would be no need for farm relief. But no one has been able to work out an acceptable scheme that would result in the creation of surpluses of industrial products comparable to those of agriculture.

On the other hand, the Agricultural Adjustment Act does make it possible for farmers to work out a joint program for controlling agricultural production—something they could not do as individuals. Such a program can be expected to increase prices received by farmers and to augment agricultural incomes as well. Hog farmers will get a larger total income from the sale of 40,000,000 hogs than from 50,000,000. Their costs of production will be substantially less, and they will not have to put in such long hours. If hog numbers are to be reduced, corn production also should be curtailed sufficiently to offset the reduced need for corn. Otherwise, an additional surplus of corn will be built up which would result, no doubt, in increased production of livestock products other than hogs.

In fact, a substantial reduction in corn and other feed crops over a period of several years is needed to bring about a reduction in the numbers of all classes of livestock on farms. Such a program, however, would require several years to effect a reduction sufficient to bring about the desired increase in farm prices.

The Agricultural Adjustment Act provides no means of financing a program to reduce feed-crop production. Payments to farmers for reducing production can be made only on "basic" agricultural products. Corn is the only feed crop designated as basic in the present Agricultural Adjustment Act. Revenues for such a program can be raised from processing taxes on basic products. Only a small sum can be raised from processing taxes on corn, as so little of the crop is processed.

Steps in Developing Corn-Hog Program

After the new administration was inaugurated in March 1933 and it was apparent that the special session of Congress would pass some kind of agricultural-relief legislation along the lines of the domestic-allotment bills considered by committees of the former Congress, the Secretary of Agriculture asked the Bureau of Agricultural Economics to set up committees to develop a practical program for each of the basic commodities.

A conference of agricultural economists of the Corn Belt was called in Chicago, May 15–16, to consider the development of a practical program for reducing corn and hog production as a means of advancing both corn and hog prices toward a fair exchange value as designated in the act. The extremely wet, late spring had so delayed corn planting that a short corn and feed crop was in prospect. It was suggested, therefore, that no effort be made to reduce the 1933 corn acreage, but that plans be worked out to effect a reduction in the 1934 acreage.

Corn-hog producers of the 10 Corn Belt States held State conferences during June and early July and elected representatives to a national conference. The national conference was held in Des Moines, Iowa, July 18–19, 1933. Each Corn Belt State was represented by delegates equal in number to its proportionate production of corn and hogs. At this conference resolutions were passed requesting action on corn and hogs under the Agricultural Adjustment Act. This conference stressed the importance of raising hog prices during the fall and winter. Since corn prices were about at their peak when this conference was held, little thought was given to ways and means of supporting corn prices. A producers' committee of 25 was appointed to assist the Agricultural Adjustment Administration in developing a practical program.

This committee of 25 met with the Agricultural Adjustment Administration officials at Chicago July 20–21. The corn-hog situation was reviewed, and the various proposals for raising corn and hog prices that had been received by the administration were considered.

In order to bring about an increase in hog prices during the fall and winter, it was proposed that the Administration purchase 1,000,000 bred sows, paying the market price plus a bonus of $4 per head, and also purchase 4,000,000 pigs weighing from 25 to 100 pounds each at a price well above the market. The Administration under this program purchased 6,200,000 pigs and about 225,000 sows during a period of about 6 weeks ended October 1. The edible part of the larger hogs was disposed of for relief purposes. The program cost the Agricultural Adjustment Administration about $35,000,000.

It was pointed out that these measures were temporary only and that a program to control both corn and hog production in 1934 and later, must necessarily follow this short-time program. In fact, any increase in hog prices by direct removal of market supplies would make a more comprehensive long-time program absolutely necessary. An increase in hog production would be brought about in 1934 and later, unless corn prices were increased correspondingly.

It became more and more evident that the problem of hog production control must be attacked directly. It would not be safe to depend upon the program to reduce only corn acreage as the sole means of decreasing hog farrowing in the spring and fall of 1934. Although the difficulties of administering the allotment plan on hogs seemed almost insurmountable, it gradually became the conviction of those working most closely with the corn-hog problem that such a plan was necessary.

On October 17, a combined corn-hog adjustment plan requiring participating farmers to reduce their corn acreage by at least 20 percent, and hog farrowings by at least 25 percent in 1934, was announced by the Secretary.

The Program

Under the corn-hog reduction plan the producer agrees:

1. To reduce the acreage planted to field corn in 1934 on the farm covered by the contract not less than 20 percent below the average acreage planted to corn on the farm in 1932 and 1933. Corn reduction payment shall be made only on a number of acres not in excess of 30 percent of such 1932-33 average corn acreage, unless authorized by the Secretary.
2. To reduce in 1934 the number of hog litters farrowed 25 percent below the annual average number of litters owned by him when farrowed in 1932 and 1933; and to reduce the number of hogs produced for market from such 1934 litters 25 percent below the annual average number of hogs produced for market from such 1932–33 litters.
3. Not to increase on this farm in 1934 above 1932 or 1933, whichever is higher; (*a*) the total acreage of crops planted for harvest, plus the contracted acres; (*b*) the acreage planted to each crop for sale, designated as a basic commodity in the act; (*c*) the total acreage of feed crops other than corn and hay; (*d*) the number of any kind of livestock other than hogs designated as a basic commodity in the act (or a product of which is so designated) kept on this farm for sale (or the sale of product thereof). And not to increase the number of feeder pigs bought in 1934 above the average number for 1932 and 1933.
4. Not to increase in 1934 the aggregate corn acreage on all other land owned, operated, or controlled by him which is not covered by a corn-hog reduction contract above the average acreage for such land for 1932 and 1933; and not have any vested or contingent interest in hogs located on land not owned or operated by him.
5. Not to use the contracted acreage except for planting additional permanent pasture; for soil-improving and erosion-prevention crops not to be harvested; for resting or fallowing the land; for weed eradication; or for planting farm wood lots.

The Secretary of Agriculture, upon proof of compliance, shall:

1. Pay for each contracted acre, 30 cents per bushel of estimated yield of corn, less the pro rata share of the county administrative expenses, in two installments: 15 cents per bushel as soon as practicable after the contract is accepted by the Secretary, and 15 cents per bushel, less pro rata share of expenses, on or after November 15, 1934. (The estimated yield of corn on contracted acreage will be determined by an appraisal of the productivity of the land, in terms of bushels of corn, under the average weather conditions of the last 5 years. The appraisal will be made by the community committee. The producer may select the field or fields to be rented to the Secretary.)
2. Pay $5 per head on 75 percent of the annual average number of hogs produced for market from 1932–33 litters, less the pro rata share of county administrative expenses, in three installments: $2 per head as soon as practicable after this contract is accepted by the Secretary, $1 per head on or about November 15, 1934; and $2 per head on or about February 1, 1935, less the pro rata share of county administrative expenses to be deducted from one or more of these payments.

A program is now under way to inform all corn producers and commercial hog producers as to the principal provisions of the corn-hog production control plan and give all qualified corn and hog producers in the United States an opportunity to participate in the plan, if they so desire. The intensive campaign, however, will be confined for the most part to the Corn Belt States.

The program is being financed largely by (1) a processing tax on hogs starting with $0.50 per 100 pounds on November 1; $1 on December 1; $1.50 on February 1; and $2.25 on March 1, and thereafter until October 31, 1935; (2) a processing tax on corn starting with 5 cents per bushel on November 1, to be raised to 20 cents later, depending to some extent on whether or not compensating taxes are levied on starches and sugars not made from corn; (3) compensating taxes on beef cattle, calves, sheep, and lambs, as well as on vegetable oils used as shortening.

Probable Effectiveness

It is expected that corn production in 1934 will be reduced by from 300,000,000 to 400,000,000 bushels below what it otherwise would be without the plan in operation. Although the plan provides for adjustment payments on approximately 500,000,000 bushels of corn, it is reasonable to expect that the reduction on farms that participate in the plan will be offset in part by increased production on the part of farmers who do not come in on the plan.

In anticipating the influence of this plan on corn prices in 1934 and 1935, certain facts should not be overlooked. The corn crop of 1933 is only about 300,000,000 bushels below average. Other feed crops, as well as forage and pasture crops, were exceptionally short in 1933. More nearly normal growing conditions are likely to prevail in 1934. The expected reduction in hogs will reduce the demand for corn by between 100,000,000 to 200,000,000 bushels.

The hog-reduction program is likely to be aided by the general pull of economic forces. The shortage of 1933 corn and feed crops in certain areas such as South Dakota already has resulted in a material reduction in hog numbers in these areas. The program to loan farmers 45 cents per bushel on corn stored on the farm has already resulted in bringing some hogs to market at lighter weights than usual and may be expected to reduce breeding of sows for spring farrow. A reduction of from 15 to possibly 20 percent or even more in the production of hogs in 1934 appears to be a reasonable expectation at this time. Without the allotment plan on hogs it is doubtful whether the reduction would exceed 5 percent.

In considering the influence of this plan on hog prices, the plan as a whole must be given consideration. The emergency program of removing 6,000,000 pigs and 225,000 sows along with the purchase of hog products for relief purposes is expected to remove from 15 to 20 percent of the 1933–34 market supply of hogs from the normal channels of distribution. The influence of this reduction in supply in both the 1933–34 and 1934–35 seasons is expected to be more than sufficient to offset the influence of the processing tax on hogs that is being used to finance this program, thereby benefitting all hog producers whether they participate and receive adjustment payments or not.

CHARLES F. SARLE,
Agricultural Adjustment Administration.

COTTON of Egyptian Type is Noncompetitive Crop for West's Irrigated Lands

The acreage available for crop production in Arizona and southern California may be considerably increased after completion of Boulder Dam, to say nothing of other irrigation projects under consideration in that section. It is important that this land be devoted, as far as possible, to special crops that cannot be grown profitably elsewhere in the country. Thus only may we avoid the risk of adding to the crop surpluses that have become such a burden to American agriculture. The climate of this section, with its high summer temperatures and extremely dry atmosphere, is not duplicated elsewhere in the United States, but is similar to that of the Mediterranean region, where we should look first for noncompetitive crop plants for the Southwest. Egyptian cotton is among the most promising of these.

This special type of cotton, developed in Egypt nearly 100 years ago, has long been recognized as one of the most valuable of the world's cottons. The length, strength, and fineness of the lint adapt it to the manufacture of such products as sewing thread, tire fabrics, airplane fabrics, and fine dress goods. During the last 5 years our annual imports of cotton from Egypt have averaged 163,000 bales. The United States Department of Agriculture has proved that Egyptian cotton can be grown successfully under irrigation in Arizona and California and that it is not adapted to the Southeastern States.

Starting with seed imported from Egypt, the Department developed the Pima variety, which is grown commercially in Arizona. Since the production of sea-island cotton ceased in continental United States, Pima ranks as the longest in staple of our cottons, the lint measuring 1$\frac{5}{16}$ to 1$\frac{5}{8}$ inches. There have been many vicissitudes in the production of Pima cotton. During and immediately after the World War it was in great demand by tire manufacturers, and, in 1920, 240,000 acres were grown in Arizona and California. At that time, however, a technic was developed that made it possible to produce satisfactory tire fabrics from shorter cottons, and the demand for Pima ceased, almost overnight.

New Demand Developed

Recently this cotton has found sufficient favor with manufacturers of women's dress goods and men's shirtings to afford a steady demand for the 10,000 to 30,000 bales produced annually in Arizona during the last 5 years. Shirt makers, mail-order houses, and department stores advertise products as made from Pima cotton, and the extension service of the University of Arizona is endeavoring to educate the consuming public as to the greater durability and the superiority in other respects of Pima fabrics. These efforts may stimulate enough demand for this cotton to justify a considerable increase in the acreage. In fact, there is a potential demand for more Pima cotton, but it is not realized, because the smallness of recent crops makes manufacturers hesitate to fill large orders with this cotton, fearing that they may be unable to obtain the quantity required. With larger production, buyers would have a wider range of selection and hence better opportunity to supply mills with the required quantity of cotton of the precise grade and character desired.

Another deterrent to increased use of Pima is the unsatisfactory condition in which much of the lint reaches the market, owing to careless picking and roping and knotting of the lint in the process of ginning. Apparently methods that have worked well with short-staple cotton cannot be used successfully in ginning the long-linted Pima. Not a few manufacturers who have used this cotton have turned from it because of faulty preparation. They contrast the cleanly picked, smoothly ginned, and carefully baled cotton of Egypt with the careless processing given to this fine product of Arizona farms. A concerted effort to remedy these conditions is now being made.

Even if existing obstacles to increased use of Pima were overcome, however, the market for so long a cotton is necessarily limited. To justify a very substantial extension of the acreage devoted to Egyp-

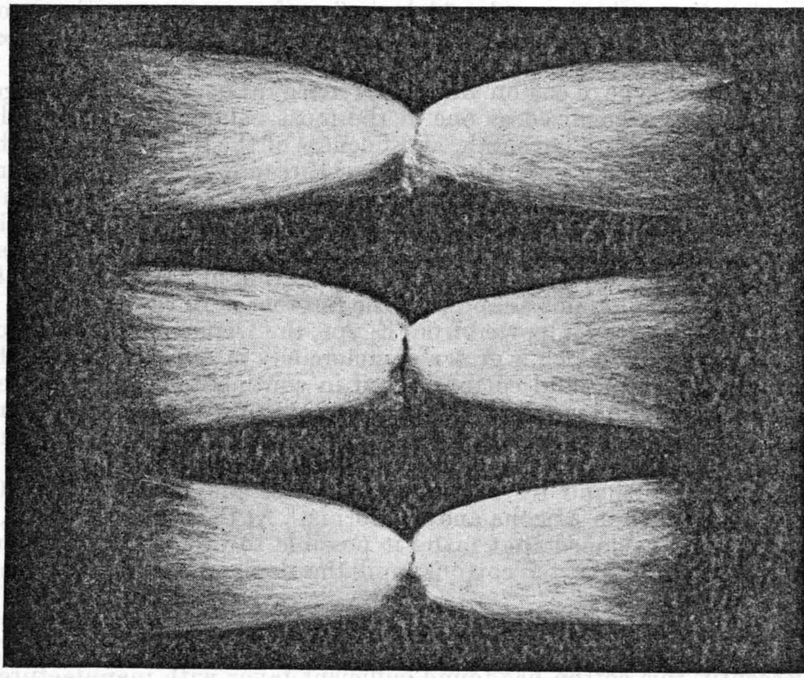

FIGURE 33.—Lint combed out on seeds, showing the length in the S×P cross (middle) relative to that of the parent varieties; Pima (upper) and Sakel (lower).

tian-type cotton in the Southwest, other varieties, meeting other manufacturing requirements, seem to be needed.

Manufacturers of certain products, notably sewing thread, claim that Pima cotton is not adapted to their needs and prefer the Egyptain Sakellaridis (or Sakel), which has somewhat shorter but very strong and fine lint. This variety has been tested in Arizona, but as compared with Pima it is less productive and later ripening and has smaller bolls. Endeavoring to combine the productiveness of Pima with the lint qualities of Sakel, the Department of Agriculture crossed the two, and, from this cross has developed a new variety, designated provisionally S×P (Sakellaridis×Pima). This variety is at least equal to Pima in yield and earliness and has larger bolls, a higher percentage of lint, and smoother seeds, making it easier to gin. From the grower's point of view it therefore appears to be a satisfactory cotton for southwestern irrigated lands. The lint is about 1½ inches long and is very fine and strong (fig. 33). Preliminary mill tests indicate that it may prove acceptable as a substitute for Sakel, but more extensive manufacturing experience is required before this can be determined. It has been estimated that if the results of such experience are favorable there is a potential market for from 20,000 to 40,000 bales annually.

Not Expected to Replace Pima

It is not thought that the new variety, even if it responds to present expectations, will replace Pima, which has longer lint and seems especially adapted to the requirements of manufacturers of dress goods and shirtings. It would be desirable to have both varieties grown in the Southwest, in order to supply different branches of the textile industry. If this can be realized, Pima and S×P must be confined to separate districts, since these varieties are so much alike in plant characters that it would be impossible to maintain pure seed of either if they were exposed to mutual cross-pollination in the field and to the mixture of seeds at the gins.

THOMAS H. KEARNEY, *Bureau of Plant Industry.*

COTTON-Volume Reduction Should be Supplemented by Quality Improvement

Favorable price reactions are expected from reducing the volume of the cotton crop, but returns to the growers may also be increased by producing better staple. The importation of long-staple cotton from foreign countries would not be necessary if our system of production were properly adjusted to utilize our natural resources and to provide our textile industries with suitable raw material. That a scarcity of good staples and a surplus of inferior fiber should occur at the same time shows the lack of adjustment.

The production of better fiber depends primarily upon the planting of good seed, and from this standpoint the system of production has changed for the worse since the Civil War. The custom gins, on account of greater mechanical efficiency, replaced the private plantation gins, but the effect of mixing seed from different farms was not recognized until a general deterioration of the crop had taken place, which later was intensified by the arrival of the bollweevil. Varieties that produce better staples were replaced in many districts by short-linted early varieties, or by irregular mongrelized seed stocks, and at the same time essential precautions in growing and ginning good fiber were disregarded. Districts that formerly produced the longest and finest fiber have in recent years only added to the surplus of short or irregular cotton.

An important adjustment of the system of production is made when the farmers of a community adopt a single variety of cotton, since this opens the way to a definite improvement of fiber quality. A unified community can standardize its product by maintaining a uniform seed stock, and thus is able to establish a practical utilization of a superior variety of cotton. Plantings of better varieties by scattered individual growers are of little effect in producing better staple, because the varieties are soon mixed at the gins and cross-pollinated in the fields. The cotton of the district continues to be irregular instead of becoming more uniform.

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Advantages of Single-Variety Communities

The single-variety communities obtain advantages in the marketing of their cotton as soon as the quantity of uniform fiber is sufficient to attract the buyers, but the true extent and value of such improvements are not fully appreciated until the community undertakings are carried to the stage of supplying manufacturers with regular quantities of uniform fiber through periods of years. Without a basis of confidence in sufficient supplies of good cotton being availabale, only a limited use has been possible, while the industrial needs of better and more uniform staples undoubtedly are much greater.

Uniformity of cotton does not mean that the individual fibers are of the same length, even on the same plant or on the same seed. Many short fibers are found among the long fibers, but it is important to have a regular proportion of the staple-length fibers, so that uniform threads may be spun and uniform fabrics woven, with a minimum of breakage in the mill operations. In a uniform variety of cotton the plants are alike and produce fiber of the same character, in contrast with the irregular fiber produced from mixed seed stocks.

The precautions that are necessary to assure uniformity of fiber include the breeding of varieties, the continued selection of progenies to maintain the true type of the variety, and isolation and roguing of seed increase fields. Choice of suitable land is essential to the production of good staple, because equable supplies of soil moisture are required for normal development of the fiber. Checking the growth of the plants injures the developing bolls and damages the fiber. Injuries to the plants and the bolls are readily recognized in the field, and a system of field inspection is being developed in the irrigated districts to keep the good cotton from being mixed with damaged fiber.

Communities that produce better staples have a practical interest in keeping cotton from being planted on unsuitable land, and this is a problem of adjustment like that of reducing production to meet commercial demands. A gradual substitution of better staples in responsible communities is desirable, to allow industrial uses to develop, instead of being discouraged by irregular fiber and by sudden alternations of scarcity and superfluity, such as have occurred in the past. Communities of farmers who have found it possible to unite on a variety of cotton and to change their systems of production and marketing of better staples, may also be able to devise methods of adjusting their crops to the industrial requirements, as a normal precaution of production.

O. F. COOK, *Bureau of Plant Industry.*

COUNTRY Banking in Need of Fundamental Change in Methods The break-down of country banks during the depression may be traced largely to three factors. The first is the tremendous decline in farm incomes and property values, which reduced bank deposits and undermined the security for bank loans and investments. The second is the fact that country banks were in frozen condition even before the depression set in, owing largely to the fact that they were combining an extensive savings and investment banking business with their commercial banking business. The third is poor management, indicated by the grant-

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Declining farm incomes, combined with "fright" withdrawals, caused bank deposits to fall precipitously during the depression, and this put an exceedingly heavy strain upon country banks (fig. 34). To meet the decline of deposits, it was necessary for the banks to collect loans, many of which were never intended to be collected in so short a time, and to dispose of bonds and other assets which were primarily investment securities. Thousands of country banks were unable to liquidate enough assets to meet deposit withdrawals. Even highly rated bonds lost much of their value during the depression, and loans that had been considered good but slow proved largely uncollectible. It may be said, consequently, that the depression was a major cause of country-bank failures.

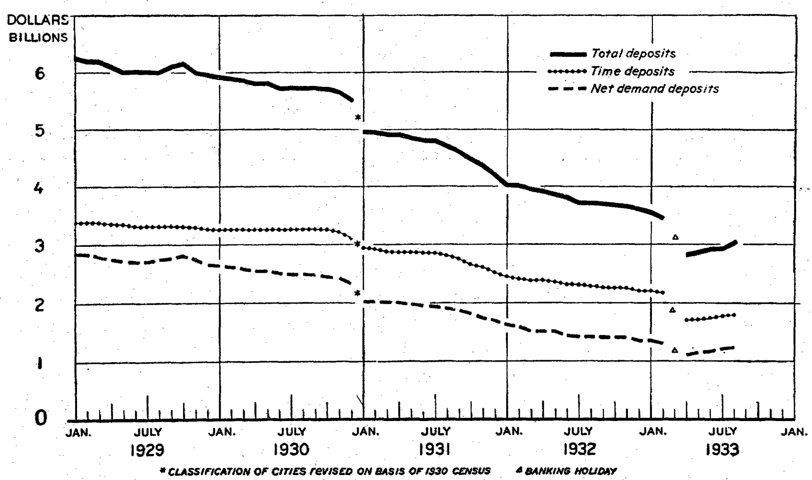

FIGURE 34.—Deposits of member banks located in places of less than 15,000 population.

But this is true only in a limited sense. The depression caused banks to fail because the banks were not in liquid condition before the depression began. As a class, country banks were overburdened in 1929 (and had been for many preceding years) with a tremendous volume of real-estate loans, unsecured "capital loans", and advances of other kinds that could not be quickly liquidated. Some of them had substantial holdings of bonds, most of which are liquid only when the demand for investments is sustained. The banks were not prepared before the depression to liquidate many of their assets at short notice, and they were even less able to do so during the depression, when deposit withdrawals required liquidation.

More Liquid Condition Necessary in the Future

If relief from bank failures is to be attained for the future, country banks must be maintained in a more liquid condition. This may require a drastic reorganization of country banking. Under the present set-up it is almost impossible for a country bank to be in highly liquid condition, owing to the fact that such banks are so largely savings and investment institutions. Seldom, if ever, can a bank find liquid loans in its community in sufficient volume to employ both its savings deposits and the loanable portion of its demand deposits. Some banks can go outside their own communities and obtain liquid loans, but when all banks are taken into the picture, the volume of bank deposits is far greater than the volume of liquid loans. As a result, commercial banks usually have to invest the savings funds in just the same way as would a savings bank—in mortgages and bonds.

The downfall of country banks was caused by bonds, mortgages, and other slow assets. Investments of these types have been the principal source of loss to country banks, and have been so unliquid as to prevent the banks from meeting their obligations. Examiners often have criticized country banks for having such a large volume of slow loans, but criticism has done little good since the banks had more lending power than could be used in liquid transactions.

It should be understood that bonds, mortgages, and even unsecured capital loans are not necessarily more hazardous than other types of advances when held by institutions which need not sell or collect them at any particular time. They are, however, an extremely hazardous type of asset for commercial banks, which are most likely to be called upon for liquidation at the very time when liquidation is most difficult. To put country banks in liquid condition, such assets must be reduced to a very small volume. This means in many cases at least, that country banks ought not to handle time and savings accounts, and that they should be required to rid themselves periodically of assets that are not based on current agricultural, business, or industrial operations.

It may not be generally known how deeply country banks are immersed in savings and investment banking. A few figures will make this clear. As shown in the chart of bank deposits, more than half the deposits of country banks consist of time and savings accounts, now as well as at earlier dates. Not only is this true, but country banks handle a much greater volume of savings funds than are entrusted to all other local savings and investment institutions. In the southern, middle-western, and western divisions of the country, which most accurately reflect the situation in agricultural communities, country banks hold about two thirds of all savings funds deposited in local institutions.

Investment Business of Country Banks

Far from being mainly commercial institutions, country banks are largely savings and investment institutions. They have assumed this position partly for the convenience of their patrons, and partly in the effort to get as much business as possible. The convenience of having all kinds of banking service available at one bank is self-evident. Moreover, in some small communities there is not enough business of all kinds to support more than one banking institution. To these reasons for combining savings and commercial operations in single institutions, bankers have added their natural desire to build their banks up to the largest possible size.

It cannot be denied that the convenience and economies from combining both commercial and savings banking under one roof have been considerable. Moreover, in farming communities the need for long-term credit is so great that some type of local institution for extending this credit is an actual necessity. But the cost in disrupted banking facilities which has resulted from having the savings business in commercial banks shows that the arrangement is a very dangerous one. It would be far safer to have a definite segregation of commercial business in commercial banks, and savings and investment business in savings banks and loan companies. Country banks cannot safely handle the slow assets that go with a savings business, for even the savings deposits of country banks are supposed to be payable at short notice.

This is said with full appreciation of the fact that numerous country banks have handled such accounts successfully, even during the present depression, and that there probably will never be a time when all bank deposits are demanded within a short period. Experience has shown, however, that large withdrawals of deposits always occur during severe depressions, and that many bankers who are accustomed to having slow loans in large volume will allow their institutions to become excessively unliquid. Moreover, the banks which have remained open in most cases did not sustain such great deposit declines as did those which closed. The strength of banks cannot be judged alone by the fact that they remain open.

The safest policy for both bankers and their patrons is to have the savings deposits in savings institutions, and to have commercial banks liquid at all times. This incidentally would greatly improve the quality of commercial-bank examinations, because assets would then be judged mainly on the basis of liquidity rather than on the basis of security. The failure of assets to liquidate within a reasonable period would be evidence that such assets should be collected, sold, or charged off immediately.

Changes Should Be Gradual

Such a change in country banking could not be accomplished without great difficulty or without sacrifice by many different interests. Some banks could specialize in savings banking for instance, and relinquish their commercial business to other institutions that were specializing in that field. But, in many cases where exchanges of assets and liabilities might be necessary, it would be hard to divide the businesses of existing banks, owing to differences of opinion over the value of assets. In any case, such a reorganization of banking should be attempted only gradually, for an abrupt change would have serious effects upon the existing system of country banks.

Separation of commercial and savings banking would produce a far better type of commercial banking than we have ever had in the past. Instead of being burdened by a large volume of unliquid assets and heavy fixed charges for time and savings accounts, commercial banks would hold mainly loans that represented advances for the current-production operations of farmers and of local business men. These would liquidate as the productive processes were completed, thus making funds available for the next season's operations. If prices fell or if business activity were reduced, so that deposits declined, the banks would not lend so liberally. But with reduced prices the patrons would not need nor want such liberal credit for production purposes; hence the restriction of credit would do little harm.

Neither borrowers from commercial banks nor the commercial banks themselves would be put under the pressure that results when savings depositors try to withdraw their money, for there would be no savings accounts in commercial banks. Such accounts would all be in savings banks or loan companies, which in turn would be the source of long-term loans to local farmers and business men. These institutions should

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be permitted to restrict payments to depositors if necessary to prevent wholesale foreclosures of loans or sacrifice of the interests of depositors who were not trying to withdraw their money. It may as well be recognized that no large volume of savings funds can be paid in a short time by any type of banking system. Such funds are invested in the long-time processes of agriculture and industry and they cannot be withdrawn at short notice.

If any commercial bank were to sustain a run, it could obtain help from a city correspondent or a Federal Reserve bank. Its assets would be of the liquid type which those institutions are glad to accept. This would represent a great change from the present situation. Although country banks now can get some help in such emergencies, their assets are so largely unliquid that this assistance is not sufficient to pay off a large proportion of their depositors.

Reform Would Benefit Farmers

To summarize briefly, a complete separation of commercial banking from savings and investment banking would accomplish two very beneficial results for farmers: (1) It would create liquid commercial banks that could remain open in hard times as well as in prosperous times. This would protect depositors against loss and provide farmers who are good credit risks with more reliable borrowing facilities. (2) Borrowers who needed long-term credits could obtain them on better terms than in the past. Such credits would be extended by savings banks and loan companies, and would not need to be of the short-dated kind so commonly required by commercial banks. Both this feature and the fact that savings banks and loan companies would be less susceptible to runs would protect farm borrowers from the pressure that commercial banks have so often been forced to apply when depositors were withdrawing their money.

FRED L. GARLOCK,
Bureau of Agricultural Economics.

CRESTED Wheatgrass Useful in Northern Great Plains Pasture

During the World War, when the demand for wheat was great and the price high, millions of acres of native sod, mainly in the Great Plains and Mountain States, were plowed and sown to that crop. With the decline in the price of wheat following the war period much of this land was abandoned, since, with the limited and uncertain distribution of the rainfall, crop production is hazardous and yields are likely to be so low as to result in financial loss to the producer when normal prices prevail. That this land was ever broken is indeed unfortunate, as many years of grazing—the use to which it is primarily adapted—have been sacrificed for a few years of profit from cultivated crops. Ranchers have shown little enthusiasm about getting these areas back into grass, and as native grasses do not become reestablished for many years, the land for the most part has been occupied by weeds, mainly annuals of little value for grazing, and has been more or less a prey to erosion.

In the search for a grass that can be utilized for such areas, crested wheatgrass (*Agropyron cristatum*), a long-lived perennial bunch grass, introduced from the steppes of Russia by the United States Departbe permitted to restrict payments to depositors if necessary to prevent wholesale foreclosures of loans or sacrifice of the interests of depositors who were not trying to withdraw their money. It may as well be recognized that no large volume of savings funds can be paid in a short time by any type of banking system. Such funds are invested in the long-time processes of agriculture and industry and they cannot be withdrawn at short notice.

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In the search for a grass that can be utilized for such areas, crested wheatgrass (*Agropyron cristatum*), a long-lived perennial bunch grass, introduced from the steppes of Russia by the United States Department of Agriculture in 1898, has appeared most promising. This grass is a close relative of slender wheatgrass (*A. tenerum*) and western wheatgrass (*A. smithii*), both native to our northern Great Plains. It excels all other grasses in cold and drought resistance. No winter injury has been noted even at temperatures of $-50°$ F. It starts about 10 days earlier than most other grasses, and with favorable moisture conditions it produces considerable fall growth. During the hot, dry periods of midsummer it becomes dormant without any apparent injury to the plant, since vigorous growth is resumed when rains occur. When it is grown in conjunction with a grass that is more productive during the summer the grazing season is materially prolonged. Crested wheatgrass has much better seed habits than other grasses commonly cultivated in the northern Great Plains, producing seed in abundance where conditions are even moderately favorable, and presenting no particular difficulties in harvesting, threshing, and cleaning the seed. Its remarkable root system, which so completely occupies the soil, prevents weeds and other plants from becoming established and is also probably a factor in the cold and drought resistance of the grass.

Extended tests made by the United States Department of Agriculture indicate that the grass is best adapted to the northern Great Plains. In sections of low rainfall in eastern Oregon and Washington it has also given good results. The southern limit of the grass has not been definitely determined, though it is doubtful whether it will succeed south of Kansas and Colorado except at high altitudes. It has given no evidence of being a competitor of timothy, orchard grass, and certain other grasses in regions of more abundant rainfall.

Crested wheatgrass is palatable to livestock either for grazing or for hay. When it is grazed, the returns from meat or milk exceed those from native grasses, and the yields of hay are usually greater than from bromegrass and slender wheatgrass. The grass is especially promising as a cover to prevent soil and wind erosion and for controlling weed growth in formerly cultivated fields and on badly overgrazed range lands.

Cultural and other detailed information may be found in United States Department of Agriculture Technical Bulletin 307.

C. R. ENLOW and H. L. WESTOVER,
Bureau of Plant Industry.

DAIRY Cow's Udder Studied to Establish Development Standards

The cow's udder provides one of the most important food products and is the source of the largest single item in the Nation's farm income, amounting to $1,260,000,000 in the depression year 1932, yet comparatively little is known about how the udder develops or how it functions.

The extreme variation in udder development and in the producing capacity of individual cows is well known to those acquainted with dairy farming. Marked variations in the visible udder development of individual heifer calves also, are common observations in almost every herd of dairy cattle. Many breeders and judges of dairy cattle are inclined to look with favor on the precocious udder in the young heifer and to attach considerable importance to that condition. Presumably this preference is based on the assumption that advanced ment of Agriculture in 1898, has appeared most promising. This grass is a close relative of slender wheatgrass (*A. tenerum*) and western wheatgrass (*A. smithii*), both native to our northern Great Plains. It excels all other grasses in cold and drought resistance. No winter injury has been noted even at temperatures of $-50°$ F. It starts about 10 days earlier than most other grasses, and with favorable moisture conditions it produces considerable fall growth. During the hot, dry periods of midsummer it becomes dormant without any apparent injury to the plant, since vigorous growth is resumed when rains occur. When it is grown in conjunction with a grass that is more productive during the summer the grazing season is materially prolonged. Crested wheatgrass has much better seed habits than other grasses commonly cultivated in the northern Great Plains, producing seed in abundance where conditions are even moderately favorable, and presenting no particular difficulties in harvesting, threshing, and cleaning the seed. Its remarkable root system, which so completely occupies the soil, prevents weeds and other plants from becoming established and is also probably a factor in the cold and drought resistance of the grass.

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The foregoing comments about advanced development of the udder refer to its appearance. The external appearance of the calf's udder, however, is likely to be very deceptive because a heavy deposit of fat beneath the skin may give the udder a semblance of exceptional development whereas the quantity of gland tissue may really be small. On the other hand, udders that appear to be retarded in development may actually contain an abundance of gland tissue in cases where the fatty deposit is scanty. It is necessary for these reasons to distinguish between deposits of fat and mammary-gland tissue in making any study of the significance of advanced mammary development.

Method of Studying Mammary Gland Development

Several years ago the Bureau of Dairy Industry commenced a study of the comparative mammary development of the udders of the heifers in the breeding herd at Beltsville, Md., giving particular attention to the glandular tissue in the udder. Examination of the udders were made at 2 weeks, and at 1, 2, 3, 4, 5, 6, 9, 12, and 18 months of age. Since it obviously is not possible to slaughter the calf for dissection and to obtain lactation records on the same animal, all examinations had to be made by palpation, the observer relying on his sense of touch in making his observations of the stage of mammary development. This study soon showed that the mammary tissue passes through definite stages of development, and revealed differences in the glandular development in the udders of individual calves only 3 or 4 months old that were relatively as great as one would expect to find in the mammary development of mature cows.

In order to determine the significance of these differences in mammary development it was necessary first of all to study the different stages through which the mammary tissue develops, and establish a standard or normal with which to compare the individuals, and then to study the comparative development of each individual at different ages in relation to capacity for production as subsequently measured by milk- and butterfat-production records.

As a check on the observations made by palpation, a number of heifers were obtained for slaughter. These, together with breeding-herd calves that died, provided specimens at most of the ages at which regular examinations were made in the living animal. The mammary-gland tissue of these heifers was dissected away from its surrounding tissues in such a manner as to enable one to visualize the glandular development that previously had been "observed" with the finger tips. The appearance of the dissected specimens corresponded closely with the observations obtained by palpation.

[4] MACMONNIES, W. DO OUR SHOW HEIFERS MAKE GREAT COWS? Jersey Bulletin and Dairy World 10 (2): 63. Jan. 12, 1921.

How the Mammary Gland Develops

The mammary-gland development in the young calf appears to begin with a small tubular formation that feels like a tiny cord, leading from the teat upward toward the abdominal wall. This is called the "straight-tube" stage of development. Sometimes an irregular mass of soft tissue may be felt along the abdominal wall, but this does not appear to have any direct association with the subsequent development of the mammary tissue. The straight-tube stage ordinarily continues until the calf is at least 1 month old—sometimes considerably longer. After a time an enlargement can be detected near the center of the straight tube. At first the enlargement is likely to be in the form of a slight bulge which tapers off toward the ends, giving it a distinctly elongated shape. Soon the enlargement takes on a rounded shape, though many retain a slight tapering at the ends for some time.

The various stages of development are illustrated in figure 35.

Although the line of demarcation between the rounded enlargement and the quarter stage is not always distinct, about half the udders examined have definitely passed into the quarter stage at 2 months of age. Very soon the glandular tissue assumes the shape and proportions of the mature udder, that in the front quarter being shallow, and that in the rear quarter being deep. It is interesting to note that the udder, at such an early age, shapes itself to fit the curve of the abdominal wall. The glandular quarters, which are entirely distinct at first, increase rather rapidly in size. The front and rear quarters on each side approach each other and finally become joined at the base, leaving a comparatively large and usually distinct V-shaped depression above. The glands at this time are considered in the half-stage of development. The right and left halves approach each other and sometimes appear to become partially joined but remain entirely separate as far as their ductal systems are concerned; in fact they are separated by a distinct septum of heavy tissue which can be readily seen when the udder is dissected. Each half develops in all directions, gradually filling in the V-shaped depression until it disappears entirely. But in this case also, the ductal systems of the quarters remain entirely independent even though a septum between the front and rear quarters is not visible on dissection.

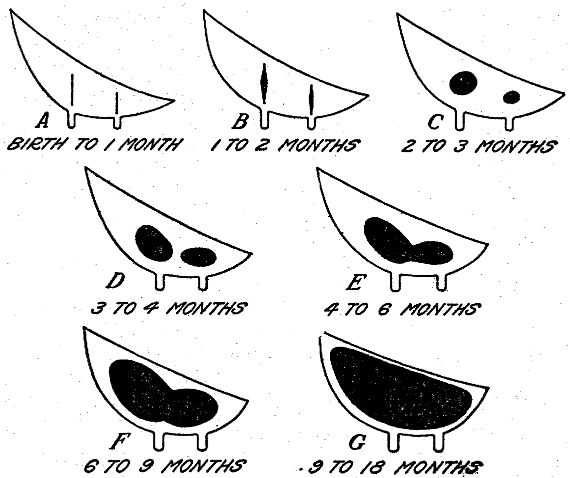

FIGURE 35.—The various stages of development of the mammary gland: *A*, Straight-tube stage; *B*, enlargement stage; *C* and *D*, quarter stage; *E*, *F*, and *G*, half stage.

The development of the mammary tissue from about 2 to 12 months of age is illustrated in figure 36. In *A* and *B* the quarters are distinct; in *C* the quarters show indications of approaching at the base; in *D* the quarters are joined to form a half, but the depression is partly filled; *E* and *F* show slightly more advanced stages; and *G* shows the continuous half.

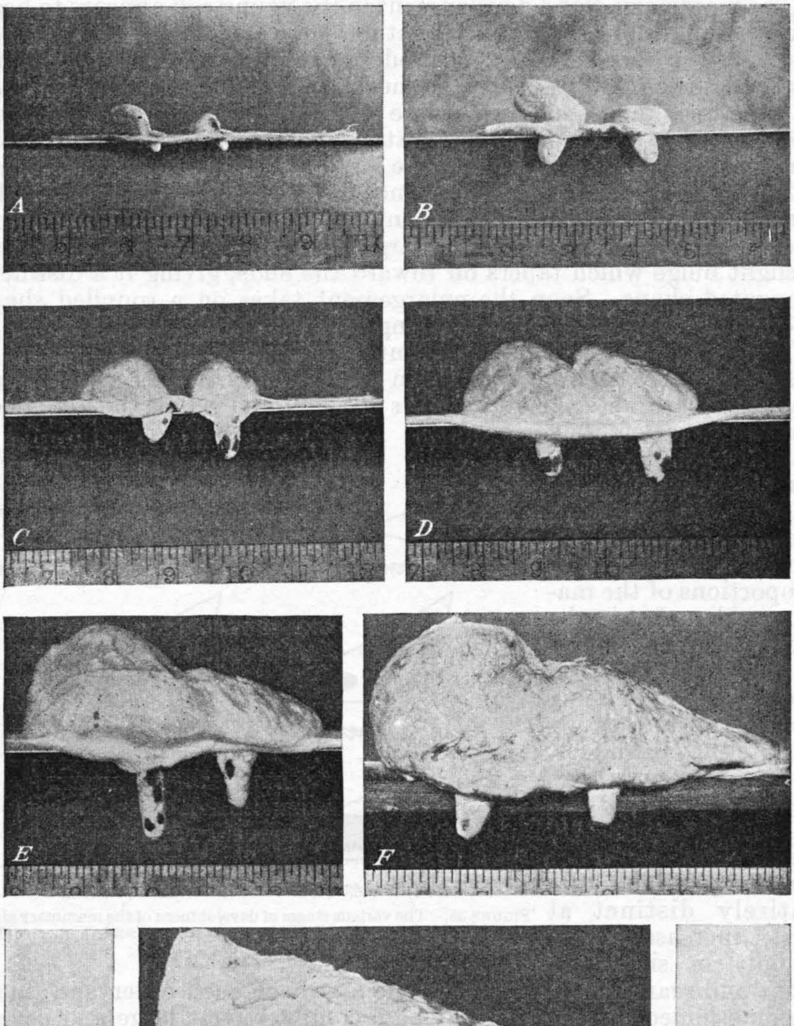

FIGURE 36.—Dissected mammary-gland tissue showing development at different ages: *A*, At 2½ months; *B*, at 3½ months; *C*, at 4 months; *D*, at 5 months; *E*, at 6 months; *F*, at 9 months, *G* at 12 months.

The data obtained since the beginning of the study have been assembled, and a summary of some of the most important items is presented in table 1. Though in reality this is a table of expectancy based on experiences gained in studying the mammary development of a large number of animals, it is presented for use as a standard with which the stage of mammary development of individual Holstein and Jersey heifers may be compared and by which it may be evaluated.

TABLE 1.—*Percentage of total number of calves represented in each stage of mammary-gland development, and dimensions of the glandular tissue at different ages*

Age group	Straight-tube stage	Enlargement stage	Quarter stage			Half stage			
			Percent	Width, front	Width, rear	Percent	Length	Width, front	Width, rear
Holsteins:	*Percent*	*Percent*		*Inches*	*Inches*		*Inches*	*Inches*	*Inches*
14 days	100	6	--------	--------	--------	--------	--------	--------	--------
1 month	99	7	2	0.22	0.27	--------	--------	--------	--------
2 months	62	29	49	.33	.37	--------	--------	--------	--------
3 months	17	9	78	.44	.52	17	1.79	0.63	0.72
4 months	5	4	44	.56	.66	55	2.33	.77	.83
5 months	--------	--------	19	.63	.80	81	2.78	.93	.94
6 months	--------	--------	6	.63	.88	95	3.33	1.04	1.04
9 months	--------	--------	--------	--------	--------	92	4.73	1.29	1.22
12 months	--------	--------	--------	--------	--------	100	5.56	1.40	1.32
18 months	--------	--------	--------	--------	--------	99	7.09	1.45	1.35
Jerseys:									
14 days	100	8	--------	--------	--------	--------	--------	--------	--------
1 month	99	9	2	.50	.50	--------	--------	--------	--------
2 months	56	31	53	.31	.36	3	1.50	.47	.47
3 months	12	7	66	.45	.53	32	1.77	.64	.67
4 months	2	1	31	.51	.59	74	2.23	.75	.78
5 months	--------	--------	7	.60	.72	94	2.78	.86	.86
6 months	--------	--------	--------	--------	--------	100	3.35	.99	.98
9 months	--------	--------	--------	--------	--------	99	4.73	1.19	1.15
12 months	--------	--------	--------	--------	--------	100	5.83	1.32	1.26
18 months	--------	--------	--------	--------	--------	100	8.26	1.47	1.41

The data are grouped according to the age of the animals. The values in the columns marked percent show the proportion of the total number of calves or heifers studied in any age group, whose mammary-gland tissue was in the stage of development indicated in the heading. The dimensions of the tissue in the quarter stage and half stage are given in inches. For a number of ages the percentages for the different stages total more than 100. This is due to an overlapping of the straight-tube, enlargement, quarter, and half stages. For example, it is possible that one udder may have glandular tissue in the tube stage, enlargement stage, and quarter stage at the same time, or an udder may have quarter stages on one side and the half stage on the other. It is noted also that in some instances the percentages for the half stages at ages from 9 to 18 months are less than 100, even though quarter stages are not present. This does not mean that the halves had not been formed, but that a notation as to the presence or dimensions of halves was omitted at the time observation was made. The greatest number of animals studied in any age group is 146 for Jerseys and 97 for Holsteins.

Although the data are not given in this condensed table, there is a period from 2 or 3 to 6 months during which in some cases the front and rear glandular quarters are approaching each other. The percentage in which the quarters are joined increases steadily to 9 months and then declines, but the decline is due to the omission of a record and not to failure of the quarters to become joined. The depression diminishes steadily in size from its first appearance at 2 or 3 months to the observation at 18 months, indicating that the depression was gradually filled in with mammary-gland tissue.

Table 1 indicates for Holsteins that at 14 days of age every udder was in the straight-tube stage. At 1 month 99 percent were in the straight-tube stage, but a few showed enlargements and quarters. At 2 months the number in the straight-tube stage was greatly reduced, and the number in the quarter stage increased to nearly half. At 3 months the number in the straight-tube stage represented only 17 percent, but although 78 percent were in the quarter stage, there were also about 17 percent in which the quarters had joined to form halves. The 4-month group was the last showing either straight tubes or enlargements, and as age advanced the proportion in the quarter stage decreased and the proportion in the half stage increased, the last quarters appearing at 6 months. The steadiness with which the front and rear quarters increased in width is noteworthy, the front ones in all cases being smaller than the rear ones. The length and width of halves also increased with striking regularity, but the front ones were more narrow in the early stages, became equal to the rear ones in width at 6 months, and thereafter were wider.

The data for Jerseys show that, although in general their mammary development is similar to that of Holsteins, the Jersey percentages for straight tubes decrease more rapidly with advance in age, the proportion in the quarter stage at 2 months is slightly higher, the last appearance of quarters is at 5 instead of 6 months, and the first halves are recorded in the 2-month group instead of in the 3-month group and consistently show higher percentages during the early stages of development. On the other hand the widths of quarters and the lengths and widths of halves are nearly the same for both breeds in most age groups. There is a tendency for the Jersey widths to be slightly lower in the intermediate age groups but to more than equal the Holstein widths at 18 months; and the lengths of halves for Jerseys, after remaining nearly the same during the intermediate ages, become distinctly greater than for Holsteins at 12 months and still greater at 18 months. On the whole the data for the two breeds are remarkably similar, the Jerseys maturing somewhat earlier in life but the quantity of mammary-gland tissue being nearly the same for both breeds, during the first 12 months.

Individual Variation in Mammary-Gland Development

Not only is a breed difference indicated, but the marked variation in mammary development found to exist between individual animals is, to some degree, shown in table 1. For example, all four stages of development are found in both the 3- and 4-month age groups for Holsteins and in the 2-, 3-, and 4-month age groups for Jerseys. Marked individual variations for the different items also are shown by the detailed data not given in the table. For example, in the 3-month group, for Holsteins, the number of straight tubes varies from 1 to 4; the number of enlargements from 1 to 4; the number of quarters from 1 to 4; the width of front quarters from 0.15 to 0.67 inch; the width of rear quarters from 0.25 to 0.75 inch; the number of halves from 1 to 2; the length of halves from 1.33 to 2.25 inches; the width of front halves from 0.42 to 0.79 inch; and the width of rear halves from 0.59 to 0.96 inch. The individual variations for Jerseys are similar, but in most cases even greater than for Holsteins.

Neither the cause of the variations found to exist in mammary development nor their significance is known. The cause may at some time be discovered through a study of genetics, nutrition, or physiology. This study is designed primarily to determine the significance of the variations in relation to the mature development of the udder and to its producing capacity. Results can be obtained only after each of the animals has reached maturity, and demonstrated her milk- and butterfat-producing capacity. Data are now complete for a few animals. When data for a sufficient number are available, correlation coefficients will be determined which are expected to reveal the significance of advanced or retarded mammary development in the heifer calf. For the present the study has provided standards with which to compare the degree of development in the individual animal.

Practical Importance

The breeder of dairy cattle would consider himself fortunate indeed if, by examining the udder of a young heifer calf, he could predict with reasonable certainty her producing capacity when she becomes a cow. Studies of dairy-herd improvement records indicate that one third of the cows enrolled fail to pay for their keep, one third produce only enough to break even, and only one third pay a profit. Approximately 5,500,000 heifers must be raised each year to provide enough replacements to maintain the present cow population in the United States. Until the time comes when herd sires are used that are more nearly pure genetically for high production it is obviously going to be necessary to cull out at least one third, or almost 2,000,000 of these heifers annually. They will be nearly 3 years old and will have cost from $75 to $125 each to raise before their capacity for production can be determined. A conservative estimate of the difference between the cost of raising and the amount received from the butcher would be $50, but even at $25 each, the financial loss resulting from raising these 2,000,000 unprofitable heifers amounts to the sum of $50,000,000 annually, to say nothing of the time and trouble involved. Ability to select at an early age the animals capable of high production would eliminate this loss. The work on mammary-gland growth in the young heifer, though not expected to provide an infallible method for doing so, does have a direct bearing on this point.

W. W. Swett and C. A. Matthews,
Bureau of Dairy Industry.

DAIRY-RATION Tests Show Importance of Vitamin A in Roughage Work at a number of experiment stations, particularly at the Michigan station, has made it clear that dairy cattle will not thrive on rations composed of grains and concentrates alone. Such rations are deficient in certain nutritive essentials which are most easily supplied either by pasture or by hay of good quality. It is very important, therefore, to discover which kinds of hay or roughage contain these nutritive essentials in most liberal quantities and to learn as much as possible about their chemical and other characteristics.

For the last 15 years the Bureau of Animal Industry and the Bureau of Dairy Industry have carefully studied the nutritive properties of different kinds of hay and roughage. The study has consisted of two lines of work. In the first place, calves and cows have been fed continuously for long periods on rations composed of grain combined with various kinds of roughage, and their growth, milk yield, reproduction, general health, and longevity have been observed. In the second place, other work has been carried out to determine so far as possible which of the chemical and other characteristics of the roughage used were responsible for the results obtained in the feeding experiments.

The kinds of roughage most extensively studied so far have been the United States standard grades of No. 1 Alfalfa hay and No. 3 Timothy hay. Some work has been done, however, with No. 3 Alfalfa, No. 1 Timothy, No. 1 Clover, and also with pasture and corn silage. Hay of the No. 1 grade is that which has been cut while in bloom or earlier, and cured so that it retains its green color, and, in the case of alfalfa or clover, its leaves. Hay of the No. 3 grade is that which has lost its green color and some of its leaves through being cut in the seed stage, or through being cured under unfavorable weather conditions.

Cows fed on a good grain mixture combined with No. 1 Alfalfa hay, but without pasture, have remained in good health, have reproduced satisfactorily, and have yielded more than average quantities of milk for periods up to 7 years. Cows fed on a similar grain mixture combined with No. 3 Timothy hay, on the other hand, have never survived and remained capable of reproducing and yielding milk for more than 3 years. The usual history has been that they begin to throw premature, weak, and dead calves after about 6 months on such rations, and that in less than 3 years they either fail to breed, or become sick and die. The milk yield usually was not markedly affected in the first year or two, but later it became much reduced in those cows in which it was possible to obtain pregnancy.

Experiments with Calves

In the case of calves, such feeding experiments are complicated by the fact that it is necessary to feed milk in the early stages of life, and the results differ according to the kind of milk that is fed. The calves are fed, according to the usual routine, on whole milk up to the age of 30 days, and then on skim milk for the next 5 months. They are offered grain and hay in addition from the age of about 2 weeks on, and usually begin eating fair quantities of these feeds after they reach the age of 3 weeks. Under such circumstances the calves often grow fairly well and survive, if the milk comes from cows that are fed No. 1 Alfalfa hay or are on good pasture, even though the calves themselves receive No. 3 Timothy hay. But if the milk comes from cows whose roughage is No. 3 Alfalfa hay, No. 1 Timothy hay, or No. 3 Timothy hay, and the calves themselves are fed No. 3 Timothy hay, they always fail to grow satisfactorily and die before they are 6 months old. If, however, the calves are fed on No. 1 Alfalfa hay they grow satisfactorily and survive on any of the five kinds of hay mentioned above.

It has, unfortunately, not been possible to obtain enough cattle to study the nutritive properties of No. 1 Clover hay, No. 3 Alfalfa, and No. 1 Timothy as extensively as those of No. 1 Alfalfa and No. 3 Timothy. Some experiments, however, have been carried out with cattle, and additional information has been obtained from experiments with rabbits. Rabbits are very similar to cattle in their feeding habits, and information can be obtained from experiments with them much more quickly on account of their small size and rapid rate of reproduction.

The results with the cattle and rabbits have agreed so far, but can be only very briefly summarized here. No. 1 Clover hay is nearly as good a roughage as No. 1 Alfalta. No. 3 Alfalfa and No. 1 Timothy are intermediate between No. 1 Alfalfa and No. 3 Timothy. It has not been possible to secure satisfactory growth and reproduction with either cattle or rabbits on rations composed of grain combined with either No. 3 Alfalfa hay or No. 1 Timothy hay, and without pasture or other fresh green feed.

It has been known for a long time that alfalfa hay contains much more protein and much more lime than timothy hay, and that hay of good quality contains somewhat more digestible protein and total digestible nutrients than hay of poor quality. But the experiments of the Bureau of Dairy Industry considered together with those of various experiment stations show that none of these easily demonstrated chemical differences could account for the differences in results which have been obtained in the afore-mentioned feeding experiments.

Significance of Vitamin Content

In the experimental work carried out in the Bureau of Dairy Industry, however, the vitamin A content of the different kinds of hay used has been determined. The results have shown that alfalfa hay contains more vitamin A than timothy, and that hay of the No. 1 grade contains more vitamin A than hay of the No. 3 grade. This work is still in a rather early stage of development, and the figures obtained must be regarded as approximations. They indicate that No. 1 Alfalfa hay contains about 30 times as much vitamin A as No. 3 Timothy hay, while No. 3 Alfalfa and No. 1 Timothy are intermediate in vitamin A content. Other work shows that good pasture contains decidedly more vitamin A than any kind of hay, and that carrots, particularly carrots of a deep-orange or yellow color, are rich in vitamin A.

There are a number of reasons for thinking that the differences in the vitamin A content of the different hays used in the experimental work played an important part in bringing about the differences in the results. In the first place, the grains and concentrates fed with the hay are known to have a much lower vitamin A content than alfalfa hay of good quality. Secondly, it is well known that a deficiency of vitamin A in the food retards growth, interferes with reproduction, and renders animals more susceptible to disease. All these conditions have been observed in the cattle and rabbits fed on No. 3 Alfalfa hay, and on timothy hay. Finally, it has been found that although calves always die when fed on No. 3 Timothy hay combined with grain and milk from cows fed on No. 3 Timothy hay, calves will survive and grow satisfactorily on such rations if cod-liver oil is added to them. There is every reason to believe, therefore, that the vitamin A content of good hay is a potent factor in accounting for its importance in the winter dairy ration, though it would not be wise at the present time to suppose that this is the only important nutritive factor which is present in liberal quantities in good hay, and deficient in grain.

The work of which an account has just been given may be said to show that roughage is the chief source of vitamin A for dairy cattle, that roughages vary greatly in their vitamin A content, and that the dairy farmer must consider just as seriously the vitamin A content of his rations as their content in protein and total digestible nutrients.

EDWARD B. MEIGS, *Bureau of Dairy Industry.*

DAIRY Sires Proved at Earlier Age by Lactation Records During the last 2 or 3 years dairy specialists and others interested in proving sires in dairy-herd-improvement associations have given considerable thought to the kind of record that should be used in comparing the production of the sire's daughters with that of their dams. Some dairymen have contended that the production of the daughters and the dams should be compared on the basis of their records made during the association testing year, a period of 12 months. Others have contended that the comparison should be made on the basis of their production during one complete and continuous lactation period.

Many studies of the two methods of comparison have been made, by State specialists as well as by the Bureau of Dairy Industry, to ascertain, if possible, their relative merits. The results of these studies are conflicting, and no definite conclusions have been drawn. Since production records are of prime importance in the proved-sire work, the Bureau of Dairy Industry, during recent months, has made a study of the two kinds of records and has observed certain pertinent facts which will aid in the evaluation of the two methods of comparison. From the standpoint of the greatest value to the dairy industry it appears that the lactation method has many features which make it more valuable than the 12-month method.

To be of greatest value to the dairy industry sires must be proved while they are still alive and young. A study of records, selected at random, of 64 sires proved by both methods shows that 30, or 46.9 percent, were proved earlier by the lactation method. The remaining 34 sires were proved at approximately the same time by both methods. It is possible that in herds being placed on test for the first time 12-month records would be available before lactation records. While this is a point in favor of 12-month records the number of sires proved by records from herds just placed on test is practically negligible.

Of the last 832 sires proved in dairy-herd-improvement associations, 23.7 percent of those proved by the 12-month method were still alive when proved while 41.9 percent of those proved by lactation records were still alive when proved. Sires are proved earlier by the lactation method because comparisons can be made as soon as five daughters of tested dams have completed their first lactation period, whereas, with the 12-month method comparisons are not made until the herd-improvement association year has ended and records are summarized, which is usually 6 months to a year later. This lapse in time represents a period very important to the dairyman who is attempting to carry out a progressive breeding program. It is likely to result in an entire crop of calves which may or may not improve the herd. It may mean disposing of a sire that should have been kept or keeping a sire that should have been slaughtered.

No Data as to Comparative Accuracy

Data now at hand fail to show that either method of measuring the production of a cow is superior to the other in accuracy. Some data, however, show 12-month records for the same cow over a period of years tend to have slightly more uniformity. Other data reverse this tendency. Any such uniform tendency is readily explained by the fact that a 12-month record usually consists of parts of two lactation periods, and is therefore somewhat of an average of the cow's production for the period, whereas the lactation record is an individual figure without averaging influences.

When records are taken by both methods for the same cow for the same period neither method shows superiority in measuring or forecasting the production of the cow in future years. Perhaps when more data are at hand and more studies have been completed one method may show greater accuracy than the other, but as yet no results are sufficiently conclusive to indicate anything other than relative equality of the two methods in this respect.

It has been contended by some that the tester can obtain 12-month records of dams and daughters more easily than he can obtain lactation records and that, therefore, more sires could be proved by the 12-month method. As a matter of fact, to obtain lactation records requires less of the tester's time than to obtain 12-month records. Only five dam-and-daughter lactation comparisons are needed, whereas with the 12-month method the tester must report the records of dams of all daughters on test during the testing year. Not only is less work required of the tester for the lactation records, but the work is distributed throughout the year as the lactation periods may happen to end, while the 12-month records must necessarily be worked out at the end of the year when the tester is busy making out annual reports and summarizing the year's work.

While other points in favor of either method can be found, in the lactation method the time element alone allowing more sires to be proved while still alive and young is sufficient to justify the general use of lactation records in proving dairy sires.

J. F. Kendrick, *Bureau of Dairy Industry.*

DIET Studies Show Needs that National Planning Must Consider In planning a long-time program for adjusting agricultural production to consumption demands, two major questions arise: How much food—what kinds and how much of each—will it take to provide an adequate diet to all of the people of the United States? How much land and how much livestock will be required to produce this supply?

The health and efficiency of a nation depend upon its diet. Its economic welfare depends to a large extent upon the prosperity of its agriculture. In trying to answer these two questions, we must turn to the researches that have been made on the nutritional requirements of man at different stages of growth and development and under different circumstances. With these physiological needs, we must correlate what we know about the nutritive values of different foods, not forgetting their cost and the quantities it is wise to consume. We must also consider the dietary habits that representative groups of our people are following at different levels of living, as well as the statistics on crop yields, distribution, etc.

A formula for a national-diet plan is therefore based on extensive computations. The first step is to calculate how much of different kinds of food is needed by individuals in order to supply the essential calories, proteins, minerals, and vitamins in good proportions. The Bureau of Home Economics has done this for every age, taking account of the differing needs of adolescent boys and girls, and of men and women doing light or heavy muscular work. The census of 1930 fur-the period, whereas the lactation record is an individual figure without averaging influences.

When records are taken by both methods for the same cow for the same period neither method shows superiority in measuring or forecasting the production of the cow in future years. Perhaps when more data are at hand and more studies have been completed one method may show greater accuracy than the other, but as yet no results are sufficiently conclusive to indicate anything other than relative equality of the two methods in this respect.

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Flexibility in National-Diet Plans

Naturally, a national-diet plan must be flexible. It must allow for racial and regional food traditions that are worth preserving. It must allow for the different amounts of money that families even of the same make-up and standard of living as their neighbors can or wish to spend on food. Therefore, not 1 but 3 diets have been worked out at three cost levels. Each is stated in terms of pounds and quarts and dozens of important foods or groups of foods. This gives some latitude of choice. These diets as here given (table 2) make no allowance for the unavoidable losses in harvesting, grading, storing, and distributing food. These quantities are for food ready for home consumption.

TABLE 2.—*Approximate yearly quantities of foods needed per capita for the population of the United States in adequate diets at 3 levels of cost*

Item	Adequate diet at minimum cost	Adequate diet at moderate cost	Liberal diet
Flour, cereal .... pounds..	224	160	100
Milk or its equivalent [1] .... quarts..	260	305	305
Potatoes, sweetpotatoes .... pounds..	165	165	155
Dried beans, peas, nuts .... do....	30	20	7
Tomatoes, citrus fruits .... do....	50	90	110
Leafy, green, and yellow vegetables .... do....	80	100	135
Dried fruits .... do....	20	25	20
Other vegetables, fruits .... do....	85	210	325
Fats, including butter, oils, bacon, salt pork .... do....	49	52	52
Sugar .... do....	35	60	60
Lean meat,[2] poultry, fish .... do....	60	100	165
Eggs .... dozen..	15	15	30

[1] The following are approximately equivalent to the food value of 1 quart of fluid whole milk: 17 ounces of evaporated milk; or 1 quart of fluid skim milk and 1½ ounces of butter; or 5 ounces of whole-milk cheese; or 4½ ounces of dried whole milk; or 3½ ounces of dried skim milk and 1½ ounces of butter.
[2] Retail cuts.

The diet lists show striking differences, as for example, in flour and cereals. The minimum-cost diet calls for 224 pounds per capita, and the liberal diet for less than half as much, 100 pounds. This illustrates, of course, a well-known fact that the less money there is to spend for food, the greater is the dependence on the staple national cereal, whether it be wheat, corn, rice, or oatmeal. But on vegetables, fruits, lean meat, poultry, fish, and eggs, the recommendation runs the other way. The liberal diet has twice as much or more of these foods.

From the nutritive standpoint, all three of these diets are adequate. They furnish enough of the nutrients so far discovered and measurable in quantitative terms, to provide for growth, maintain health, and leave a margin for safety. Naturally, the liberal diet includes the so-called "protective" foods in most generous quantities. It also includes more of the foods that appeal to the eye and the palate. It takes a shrewd shopper and a skillful cook to give variety and appetite appeal to a minimum-cost diet week in and week out. Fortunately cabbage, carrots, and some other green leafy and yellow vegetables rich in vitamins and minerals and hence high in the "protective" values, are plentiful and cheap. Along with milk, tomatoes, and citrus fruits they help to safeguard the minimum-cost diet with its high proportion of cereals.

Per Capita Cost of the Three Diets

On the basis of retail prices during 1931–32, the per capita cost of the three diets ran $85, $140, and $165 for a year. Judging by family-living studies the majority of families in the United States spend for food about as much as they would have to pay for the minimum- and moderate-cost diets. Records from families on farms and from wage earners living in cities show that their food costs were at this level during the period from 1922 to 1929. Due allowance is made, of course, for price changes and a money value is also placed on the food that the farm families took from their home-raised supplies without cash outlay. Reports also show that during this same period, the families of many skilled wage earners and business and professional workers spent enough to give them the liberal diet. Hence the diets here recommended are not out of line with our food expenditures in normal times. In nutritive value, however, the suggested diets are much higher than those that most families now select.

Acreage Required for the Three Diets

For the second question—how much land and how much livestock are required to produce the food for these diets that measure up to the standards of good nutrition? Preliminary estimates of the Production Planning Section of the Agricultural Adjustment Administration indicate that 2.68 acres of land, not counting pasture land, would be needed per capita to supply the foods for the liberal diet. For the minimum-cost diet, the estimate is 1.79 acres per capita, and for the moderate-cost diet, 2.24 acres. These figures are based on the average per acre yields of different food crops in this country during the 10-year period 1923–32 with an allowance for exports, seed, and for land needed to feed the horses and mules used in producing the foodstuffs, also for waste and shrinkage between farm and kitchen. Pasture lands vary so widely in the number of livestock that they can support per acre that the land requirements for meat production need more careful analysis. On the same basis, 2.27 acres would be required to produce the food apparently consumed per capita each year during the period 1925–29.

Better Nutrition Is the Goal

In our national planning, it is the moderate-cost and the liberal diets toward which we need to work. They would lend stability to our use of land and labor, it is believed. For diets that are very inexpensive to the consumer are largely made up of foods that require relatively little land and labor to produce. They are composed largely of the nonperishable foods, the ones that can be stored for a long time and distributed cheaply, such as grain products, dried legumes, and potatoes. We know, however, that we fall short in our consumption of other foods, notably milk, certain fruits, and many of the leafy vegetables. For our health's sake, our use of these foods might well be considerably increased several fold.

These more adequate diets if adopted nationally will do much more than just eliminate pellagra, rickets, and the other out-and-out evidences of faulty nutrition. Every year brings increasing evidence that dental caries is chiefly a nutritional problem. There are also many border-line cases of poor health difficult to diagnose, but to which food habits unquestionably contribute. These better diets will take us above our present average and far on the road toward optimal nutrition.

HAZEL K. STIEBELING, *Bureau of Home Economics.*

DUTCH Elm Disease Now Serious Around New York; Entered Country in Logs Since 1919 the Dutch elm disease has been sweeping over Europe, killing elms. It is caused by the fungus *Graphium ulmi.* The leaves wilt or turn brown or yellow, and this is accompanied by a brown discoloration of the young wood. The disease spreads rapidly down the vessels and the tree dies. The fungus is carried from tree to tree by elm bark beetles, which lay eggs and hibernate under the bark of moribund elms, and feed on young healthy twigs.

The disease has been known in the United States since 1930. During that year 3 infected trees were found in Cleveland and 1 in Cincinnati, Ohio. In 1931, 4 more infected trees were discovered in Cleveland. Scouting in 1932 revealed no additional trace of the disease. In 1933, by extensive scouting, but 1 additional infected tree was found in Ohio. All the disease found in Ohio has been eradicated, and the infection there seems to be under control.

However, in 1933 a new and much more extensive outbreak was discovered around New York City. Early in the summer the causal fungus was cultured from specimens taken from a park tree in Maplewood, N.J. Late in 1932 the park foreman had noticed a wilting limb on the elm, which he attributed to the drought then prevailing. But in the following spring, during abundant rain, the whole tree wilted.

As soon as the disease was determined, cooperative arrangements were made with the New Jersey State officials and the local shade-tree commissions. The assistance of technicians and of camp men was obtained from the Civilian Conservation Corps. Funds were secured from the Public Works Administration. An extensive campaign was begun. Soon it was discovered that the disease was also present in New York State.

Until October 31 this infected area, centering in New York City, contained 677 known infected trees. Of these, 628 were in an area that was within about 15 miles of the Hudson River and New York Harbor and extended from Paterson to New Brunswick, N.J. In New York State, Staten Island, Long Island, and the south half of Westchester County were involved, and 48 known infected trees had been found. One tree had been located just across the border line in Connecticut.

A third independent infected region was discovered at Baltimore, Md., where one tree was located on the grounds of Fort McHenry.

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A third independent infected region was discovered at Baltimore, Md., where one tree was located on the grounds of Fort McHenry.

One Method of Entrance Discovered

During 1933 one of the most serious handicaps to the control of the Dutch elm disease in the United States was removed. A method of travel of the fungus across the Atlantic Ocean barrier and of entrance into the United States was discovered.

In July 1933 the inspector of the Bureau of Plant Quarantine at the port of Baltimore, Md., discovered elm burl logs that were infested with *Scolytus* beetles. These logs had been imported from Europe for the cutting of fancy veneers. They were destined for the interior of the United States. Examination and culturing of specimens disclosed the presence of *Graphium ulmi* in the wood. Similar interceptions

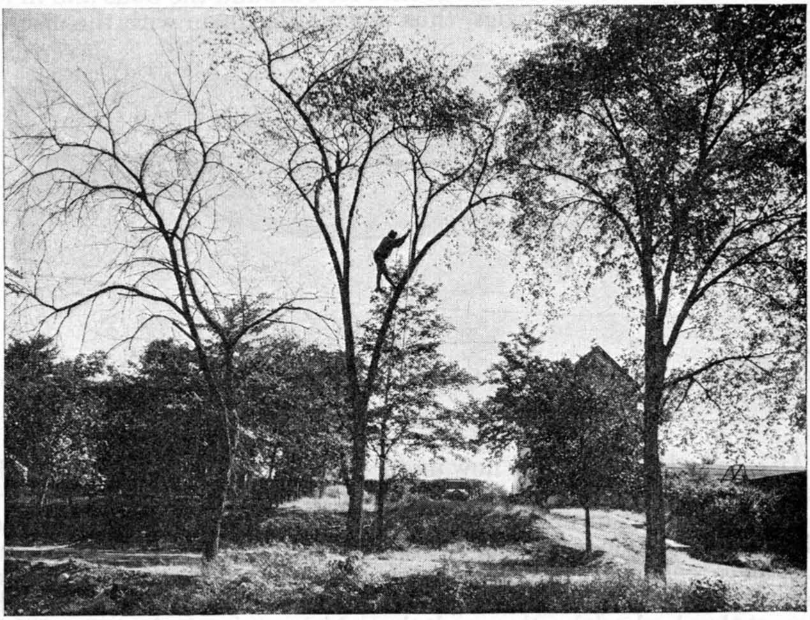

FIGURE 37.—Elms dying from the Dutch elm disease in New Jersey.

were subsequently made at New York, Norfolk, Va., and New Orleans, La. In these logs one or both of the two species of elm-bark beetles, *Scolytus scolytus* and *S. multistriatus*, which are the principal carriers of the elm disease in Europe, were present, in some cases abundantly. From three of the shipments the fungus *Graphium ulmi* was cultured. It appears that the importing of elm burls for veneer is a movement of rather recent development. The logs come under the name of burl elm or Carpathian elm.

Steps were taken immediately by the Bureau of Plant Quarantine to eliminate this source of entrance of the Dutch elm disease and of its insect carriers, and Quarantine No. 70, effective October 21, 1933, was issued, regulating the entry of such logs by methods believed to remove all risk. The quarantine also forbids or regulates the importation of other parts of the elm and related plants.

The discovery of the entrance of the disease on elm burl logs now makes it possible to understand the present known distribution of the disease in the United States. The Baltimore infection is not far from the piers where imported logs were unloaded; the Cincinnati and the Cleveland trees were near railroads that hauled imported logs; the New York City infected area surrounds the piers where several shipments arrived, and its most heavily infected section is penetrated by log-transporting railways.

According to the Bureau of Entomology, of the two beetles found in the imported logs but one, *Scolytus multistriatus*, is known to be established in the United States. These beetles burrow between the wood and the bark of unhealthy elms and there lay their eggs, and there the larvae develop. If the tree is infected with *Graphium ulmi*, the fungus produces its spores in these beetle tunnels, and the insects become covered with them. Later the beetles feed around the buds and in the crotches of healthy elm twigs, thus inoculating them with the disease.

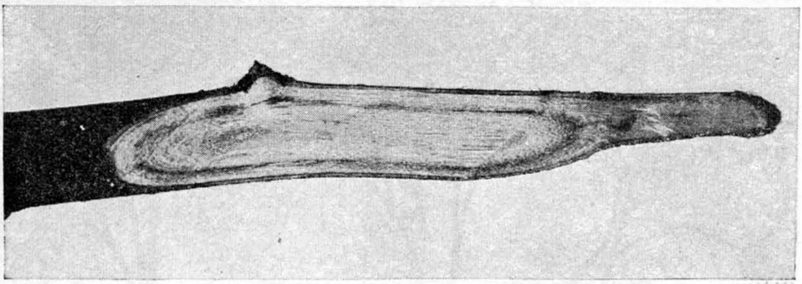

FIGURE 38.—Brown ring produced by the Dutch elm disease fungus in the young wood of an elm twig.

Eradication Campaign Under Way

An energetic campaign is now under way to secure the removal of the known infected trees and to discover others. The problem now presents itself in this form: Either we must abandon our effort and reconcile ourselves to heavy losses of the American elm, or we must undertake an extensive, thorough, and whole-hearted cooperative movement to find and eradicate every *Graphium*-infected tree and to reduce to the utmost the elm-bark beetle population which carries the fungus. While about 1,400 square miles are included in the area in which infected trees have been found, the actual percentage of diseased elms is small. In the towns of the New Jersey district, on an average less than half of 1 percent of the elms are known to be infected. Even in the most heavily infected towns not over 2½ percent of the trees as yet are known to have the disease. Many more may be found in 1934.

Success in fighting this disease and saving the American elm requires cooperation from everyone. Clean out and burn all dead wood from your elms. Keep them in a healthy condition. Watch them for wilting or yellow or brown leaves (fig. 37) accompanied by brown streaks in the young wood (fig. 38). Send specimens the size of a lead pencil of any twigs thus affected to your State agricultural experiment station or to the Division of Plant Disease Eradication and Control, 202 Post Office Building, East Orange, N.J., or Room B-32 County Office Building, White Plains, N.Y., or 200 Atlantic Building, Room 316, Stamford, Conn.

R. KENT BEATTIE, *Bureau of Plant Industry.*

EELGRASS Disappearance Has Serious Effects on Waterfowl and Industry One of the outstanding biological phenomena of recent times has been the sudden and nearly complete dying out of eelgrass (*Zostera marina*) during the past 2 or 3 years along the Atlantic coasts of North America and Europe. The disappearance of this seaweed has forcefully called attention to its importance to waterfowl, its intricate relations to other aquatic life, and its great economic value.

Though eels find shelter within its stands, whence its name, eelgrass is neither eaten by eels nor is it a grass. It is a flowering plant of the pondweed family and grows submerged in brackish waters. Under normal conditions it is the dominant plant of such waters, growing in dense masses on mud flats, which at low tide may be exposed or barely covered, though at high tide they may be under 10 feet or more of water.

The plant's range on the Atlantic coast is from North Carolina (near Beaufort) to southern Labrador, James Bay, and the west coast of Hudson Bay, in Canada. It also occurs on the Pacific coast and in northern Asiatic waters as well as on European coasts, including the Mediterranean Sea. Among names commonly applied to it are seaweed, crabgrass, sea-oar, sea-grass, saltwater-grass, brant-grass, ribbongrass, tiresome-weed, widgeon-grass, sea-moss, duckweed, grassweed, grass-wrack, wrack-grass, sea-wrack, glass-wrack, barnacle-grass, bellware, sweet-grass, turtle-grass, drew, marine zostera, mallow, and alga. The dried plants are also known as hay, sea-hay, sea-sedge, and alva marina.

Importance of Eelgrass

However great the value of eelgrass for economic purposes, this is probably much less than its value in nature. As the dominant plant along much of the coast, it bears an important relation to every creature living in these waters, and thus is also of indirect value to man. It is normally the staple winter food (more than 80 percent) of sea brant, an important food of Canada geese and black ducks, and it is only slightly less important to scaups, redheads, and other waterfowl feeding along coastal waters. The numbers of brant, already seriously reduced by hunting, are so greatly menaced by this curtailment of their natural food supply that the Department of Agriculture has declared a closed season for them in the Atlantic Coast States. Disappearance of eelgrass is also affecting the fishery and shell-fishery industries and has resulted in such erosion of many coastal areas as to alter considerably their surface features.

European history shows that eelgrass had economic uses during earliest times. Ashes of the plant are reported to have been found at ancient village sites in Denmark, burned, it is thought, to obtain salt and soda. On islands deficient in wood, eelgrass has served for fuel. For dwellings near the coasts it was an early form of bedding, and it is still used for filling mattresses and bed ticks. Fishermen and farmers along the coast use eelgrass for bedding domestic animals, and in recent years the dried fiber has had extensive use both in North America and abroad in upholstering and packing and as a compost for fertilizer. In the Netherlands it is said to have had some use in dike construction.

Eelgrass has found its most extensive modern use as an insulating material. In New England it was first used for this purpose by the early settlers, who banked houses and barns and covered cellar storehouses and other structures with it. For insulation against cold, heat, or sound, it is made into single, double, or triple-ply quilts, sandwiched between layers of tough kraft, waterproof, or asbestos paper. It is used also for wall sheeting in buildings, for roofing and pipe covering, and for insulating gas and electric ovens, fireless cookers, and other domestic apparatus. As a sound deadener it has proved of value in conservatories of music, apartment houses, offices, and hotels. The eelgrass quilts made for these purposes are usually in rolls containing 250 square feet, each roll weighing 40 to 90 pounds, depending upon the thickness. Several patents have been issued for its use in the manufacture of a high-grade paper. During the war, when cotton was hardly to be had in Germany, the fiber of eelgrass was incorporated into nitrocellulose, or guncotton.

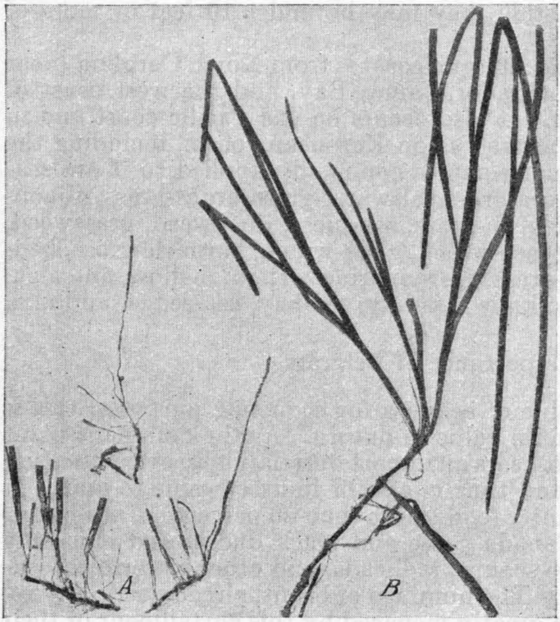

FIGURE 39.—*A*, eelgrass plants collected December 16, 1932, from a badly diseased stand (crop less than 1 percent normal) in South Oyster Bay, N.Y., showing leaves frayed and rotted off; *B*, eelgrass collected August 11, 1932, from an apparently normal stand in Hancock County, Maine. (From pressed herbarium specimens.)

Because of the abrupt dying off of eelgrass, there has been practically no harvest during the past few years, but during 1929, which was probably a year of maximum production, two Boston firms alone imported 1,725 tons of the dried plant from Nova Scotia. Other countries important in the production of eelgrass are Great Britain, the Netherlands, and France, the exports from the Netherlands having aggregated 2,000 to 3,000 tons annually. In the United States domestic production between 1913 and 1927 is believed to have been about 5,000 tons annually. The price paid for the dried material delivered at the factory has been $20 to $30 a ton. A crop report from France indicates that the price there nearly doubled in 1913, a year in which little eelgrass was produced.

History and Extent of Disappearance

The factor or factors responsible for the destruction of eelgrass plants (fig. 39) may have been operating over a long period. The conspicuous dying out, however, occurred in most localities in 1931 and 1932, with some evidence of the trouble in a few restricted areas late in 1930.

It seems that in midsummer of 1931 in most localities from North Carolina to New England the leaves of the eelgrass became somewhat darkened, broke from their roots, and washed ashore in great windrows. Before that summer was over, less than 1 percent of a normal stand of the plant existed in the sections affected. So far as the writer is aware, such rapidity of spread and destructiveness of a plant epiphytotic is not known elsewhere in botanical history.

The Canadian coast south of the Gulf of St. Lawrence was denuded by the fall of 1932, and when the ice cleared away in the spring of 1933 practically the entire area of the plant's regular range, which extends to the Strait of Belle Isle, was fully 99 percent devastated.

Along the eastern coast of the United States, however, there are still a few tidal estuaries and river mouths not yet seriously affected. One area in Chesapeake Bay (Long Beach) has been under observation for some time, and though as late as June 1933 it had a normal crop of eelgrass, at the end of September not more than 1 percent of the normal crop remained.

Most of the European coast from the Mediterranean to Sweden is known to be similarly affected. The disease appeared first along the French coast during the winter of 1931–32 and spread rapidly. A report from Sweden indicates that the southern coast appeared to be unaffected late in the fall of 1932, but by January 1933 the eelgrass was largely gone.

Eelgrass on the western coast of the United States has not yet been attacked. Species of closely related plants appear to be unaffected. While the cause of the disaster is not positively known, evidence points strongly to a bacterial infection.

Will the Plant Return?

Only time can tell whether the plant will return to its normal abundance. Many areas that at one time showed healthy seedling growth were laid waste a few weeks later. Other areas have shown a progressive improvement since the first widespread destruction. Particularly has this been true in the southern part of the eelgrass range, as in Swanquarter, N.C., and Shinnecock Bay, N.J.

There is a wide difference of opinion regarding the past fluctuations of the eelgrass. All information, however, points to the fact that in the memory of man though there have been periods of scarcity, none has been at all comparable with the present one. Many fishermen and coastal sportsmen assert that there has always been a good crop of eelgrass, while others equally reliable maintain that the plant has fluctuated in abundance.

The importance of eelgrass shows clearly that continued study of the problem of its disappearance is needed. In the meantime protection should be given where possible to those forms of wild life most severely affected. Effort should be made to restore an ecologic balance by attempting to substitute other desirable aquatic vegetation. It would seem that the related forms *Zostera nana* and species of *Phyllospadix* in the more salt waters, and widgeongrass (*Ruppia maritima*) in those less salt, might be used to make good the food and cover lost to waterfowl in the eelgrass catastrophe.

CLARENCE COTTAM, *Bureau of Biological Survey.*

EGGS Oiled by Vacuum Carbon Dioxide Method Keep Well in Storage The oil treatment of shell eggs as a means of retarding deterioration during storage has received considerable attention during recent years. As a result of work done in this field the vacuum carbon dioxide method for oil treating shell eggs was developed in the Bureau of Chemistry and Soils. According to this method the eggs are placed in a chamber capable of being sealed hermetically which contains a quantity of oil. The air is drawn out until the desired vacuum is obtained; the eggs are immersed in the oil and raised above the surface; and the vacuum is then released with carbon dioxide from a pressure tank.

Studies carried out with eggs given the vacuum carbon dioxide treatment have shown conclusively that this treatment is efficient in maintaining the original quality of eggs during storage.

Oiling Retards Loss of Carbon Dioxide

One of the most important deteriorative changes that normally take place in shell eggs during storage is the development of thin or watery whites. It has been shown that this change is partly caused by the continual loss of carbon dioxide, which subsequently results in an increase in alkalinity of the egg white. A study was made to determine the rate of loss and the average amount of carbon dioxide given off by shell eggs under commercial egg-storage conditions, as compared with the loss of carbon dioxide from eggs that had been oiled before being stored. The eggs used in this work were uniform in size and were graded as U.S. Specials. The study was continued for 1,000 hours. It was found that strictly fresh eggs placed immediately in gas-collecting chambers made for the purpose lost on an average 10 milligrams of carbon dioxide per egg per 24 hours during the first 48 to 96 hours. After that time the amount decreased to about 5 milligrams per 24 hours. Oiled eggs showed an average loss of 5.5 milligrams of carbon dioxide per 24 hours for about 96 hours, after which the amount diminished to approximately 3 milligrams per egg per 24 hours. It is evident, therefore, that oil protection retards the rate of loss and consequently the amount of carbon dioxide lost. Thus it also retards hydrogen-ion change and the formation of thin or "watery whites."

A few unoiled eggs that had been held in the same commercial storage room continuously for 2 years were studied in a similar manner. It was found that these eggs, despite their age, still gave off measurable amounts of carbon dioxide in 24 hours, the average being between 1 and 2 milligrams per egg.

Studies on hydrogen-ion concentration in (1) unoiled, (2) plain oiled, and (3) vacuum carbon dioxide oiled eggs under storage showed that the vacuum carbon dioxide method exerts a stabilizing influence on the hydrogen-ion concentration. Fresh egg white showed an average pH of 7.6; whites of eggs which had been treated by the vacuum carbon dioxide method and then stored for 8 months showed an average pH of 7.8; plain oiled eggs stored at the same time showed an average pH of 8.3; whereas unoiled eggs, similarly stored, showed an average pH of 8.9.

Oiling Does Not Affect Flavor

The grading of shell eggs by candling alone is not a conclusive criterion upon which egg quality can be based. Storage eggs may be graded as high quality when viewed in front of the candle, but may still possess objectionable flavors. Conversely, deteriorative changes during storage, resulting in low grading before the candle, are not necessarily accompanied by "off" flavor of the egg. Taste tests made on eggs that had been vacuum-treated before storage with colorless, tasteless, and odorless mineral oils of different base and of widely different specific gravities and "pour points" showed that the eggs had retained their original flavor during storage.

T. L. SWENSON and L. H. JAMES,
Bureau of Chemistry and Soils.

EGG Quality, Controlled by Breeding and Feeding, Increases Poultry Income A coordinated program of research on factors affecting the production of high-quality eggs is being carried on at the United States Animal Husbandry Experiment Farm, Beltsville, Md. Results obtained thus far, together with observations of the commercial handling of eggs, indicate several means by which farmers and poultrymen may obtain better returns from egg production. Consumers have always shown a preference for eggs free from objectionable odors, bad flavors, or discolored yolks. In recent years many consumers have become exacting with respect to other characteristics in eggs and have been willing to pay a premium for eggs of good size, uniform yolk color, and firm whites.

The quality of eggs, of course, is often materially affected by the conditions under which they are held on the farm and by those under which they are marketed. Improved methods of storing and marketing eggs will do much toward maintaining the quality which the eggs possess when they are laid, but the best methods of sanitation and marketing can do no more than maintain the quality of eggs determined by the feeding and the breeding of the birds which produced those eggs.

Eggs of good quality should be clean and fresh, weigh about 24 ounces to the dozen, be uniform in size and shape, have strong shells of uniform color, have firm whites, small air cells, and well-centered spherical yolks of uniform color, not too dark nor too pale. Such eggs command a price several cents a dozen higher than eggs lacking one or more of these qualities.

Shell Color Influenced by Breeding

Scientific studies have shown that shell color is determined by inherited factors and that uniform shell color may be attained only through selection and breeding. Shell quality, including strength and texture, probably may be improved in the same way. It may also be improved through proper feeding. Laying fowls should receive a diet in which the calcium-phosphorus ratio is between 1.8 to 1 and 3.5 to 1. The absolute calcium content may vary from 1.8 to 4 percent, depending on the egg production. The phosphorus content may vary from about 0.5 to 1.2 percent.

Confined layers should always receive from 0.5 to 2.0 percent of the diet in the form of tested cod-liver oil or its equivalent in some other source of vitamin D. Layers, particularly in sections north of the Gulf States, should receive an adequate vitamin D supplement to the diet during the winter months. There is some evidence that bluegrass range contains some factor other than vitamin D which improves shell quality.

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Guide to Culling for Egg Size

Egg size is determined in part by inherited factors. Within a breed or strain the larger birds tend to lay the larger eggs; therefore, culling the smaller pullets among those of the same age will improve egg size. A pullet's first 10 eggs should average about 1.75 ounces each if that pullet is to average 2-ounce eggs in her pullet year. Pullets whose first 10 eggs are distinctly lighter than 1.75 ounces each should be culled. Egg size may be increased among confined birds by increasing the protein content of the diet up to about 20 percent, especially if milk products are used.

Quality of Egg White Is Inherited

The quality of egg white is determined largely by inherited factors. There is no experimental evidence that diet plays any part in determining the relative quantity of thick white in an egg. The whites, thick and thin, of a pullet's first egg are somewhat firmer than the whites of the eggs she lays later. This is due to the fact that her eggs increase in weight, owing chiefly to increase in weight of the yolk and the thin white, whereas the weight of the thick white increases relatively little. There is no correlation, however, between firmness of white and egg size among eggs from birds of the same age. The change described is independent of diet and number of eggs laid. There may be diets so poor that they cause watery whites, but this has not yet been demonstrated. Present information suggests the desirability of selecting as breeders those birds which lay eggs with firm whites and whose daughters also lay eggs with firm whites, and likewise the progeny of such birds.

Yolk Color and Quality

Weak, flaccid yolks are found in eggs with watery whites. Yolk color is characteristic of individual birds on a particular diet, and the capacity to transmit pigment may be inherited. Colorless yolks will be produced by any bird, regardless of her ancestry, if the diet is devoid of xanthophyll pigments. These pigments occur in yellow corn, greens, and alfalfa-leaf meal.

Pale yolks of a relatively uniform color may be produced by confining the birds and feeding an all-mash diet which contains limited quantities of yellow corn and alfalfa-leaf meal or other sources of pigment. Barley or white corn may be substituted for a part of the yellow corn. Great care must be taken to supply cod-liver oil to such birds or they will suffer from vitamin A deficiency. The eggs also will be deficient in this vitamin unless cod-liver oil is given, and poor hatchability will result. Some control over yolk color may be attained by feeding a diet containing only a little pigment and permitting the birds to have access to a green range for a limited time each day. Spotted and greenish-brown yolks are likely to be produced if large quantities of cottonseed meal are fed.

Nutritive Value

Although the nutritive value of an egg should be a factor in determining quality, it is usually ignored. Pullets' first eggs contain relatively more protein and water and less fat than their later eggs and the eggs of hens because the yolks of pullets' first eggs are smaller, both in absolute size and in relation to the size of the whole egg. Among eggs from birds of the same age, the larger eggs contain relatively more protein and water and relatively less fat than do the smaller eggs.

The content of vitamins A, B, C, and E in eggs is determined by the diet of the hen. Eggs produced by birds whose diet contains feeds adequate in vitamins A and D may be of therapeutic value on account of containing these factors.

MORLEY A. JULL and THEODORE C. BYERLY,
Bureau of Animal Industry.

EMERGENCY Conservation Work Program Provides Useful and Healthful Work On the last day of March 1933, President Roosevelt signed a bill enacted by Congress which authorized a vast program for unemployment relief through the performance of useful work in the forests. Under this authorization, some 300,000 men from the ranks of the unemployed have been given healthful outdoor employment in the forests.

In recommending this step President Roosevelt decided upon work in the forests as the first form of employment in his relief program largely because of the unusual opportunities it offers to men from all walks of life to take a fresh start in a healthful occupation in the open. While the work accomplished is much needed and will be largely self-liquidating, the primary object of the plan was to put men to work promptly. The President's message to Congress said in part:

> * * * more important, however, than the material gains will be the moral and spiritual value of such work. The overwhelming majority of men who are walking the streets and receiving private or public relief, would infinitely prefer to work. We can take a vast army of these unemployed out into healthful surroundings. We can eliminate to some extent at least the threat that enforced idleness brings to spiritual and moral stability. It is not a panacea for all the unemployment, but it is an essential step in this emergency.

At the same time that unemployment is being relieved, the program will result in the accomplishment of some enormously important public work—work much needed for the protection and improvement of the country's forests. It will be work needed for developing and safeguarding a vital national resource, building for future national wealth. While the purpose of this big forest-work program was primarily unemployment relief, it by no means called for "made work", intended merely to keep men busy. The labor performed in the forests will render a great public service by helping to put the forests of the country in a productive condition which it would have taken decades to attain under ordinary circumstances. It will help to check the huge losses now sustained each year from fires and from floods. It is work that should eventually yield direct and indirect benefits to the Nation far beyond its present cost.

Four Federal Departments Cooperating

Four departments of the Government cooperated in carrying out the project—the Departments of Labor, War, Interior, and Agriculture. A Director of Emergency Conservation Work was appointed by the President to coordinate the whole program. Men who applied for admission to the camps were enrolled by the Department of Labor. in lute size and in relation to the size of the whole egg. Among eggs from birds of the same age, the larger eggs contain relatively more protein and water and relatively less fat than do the smaller eggs.

The content of vitamins A, B, C, and E in eggs is determined by the diet of the hen. Eggs produced by birds whose diet contains feeds adequate in vitamins A and D may be of therapeutic value on account of containing these factors.

MORLEY A. JULL and THEODORE C. BYERLY,
Bureau of Animal Industry.

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Much of the work has been done on the national forests, under the jurisdiction of the Forest Service of the Department of Agriculture. The national forests, with a total area of more than 161 million acres, located in 30 States, offer unlimited opportunities for useful work. All of this work on the national forests is in line with an established, long-term improvement program. Fire hazards will be reduced on areas where the greatest danger of fire exists. Timber stands will be improved by thinning and other cultural practices that make for better, faster-growing trees. More efficient fire suppression will be attained through the construction of fire breaks, telephone lines, lookout stations, fire-protection roads and trails, and emergency landing fields. Insect pests and diseases of the forest trees will be eradicated and trees will be planted on burned-over and denuded areas, though the amount of tree planting that can be done is limited by the amount of nursery stock available for planting. It should perhaps be made clear that, while the forest-work program has been spoken of frequently as a reforestation program, reforestation, in the narrow sense of tree planting, is only one of the many lines of work that can be undertaken to promote the conservation and development of our national-forest resources, and the improvement of the national-forest facilities for the benefit of the public.

All this work on the national forests will be in line with existing long-term plans for the development and protection of the forest resources. The plan has meant a vast speeding-up of an established national-forest improvement program.

The act of Congress which authorized the forest-work plan provided also for extending the work to State-owned and private forest lands under cooperative agreements. Congress made the provision in the act for the extension of the work to private lands in order that a larger share of the work might be carried on in the States east of the Mississippi River, where only relatively small areas of Federal and State forest lands exist. Work under this program on privately owned lands involves only such types of projects as are primarily of public benefit, rather than chiefly of benefit to the owners of the land. This includes such things as the prevention and control of forest fires, the eradication of insect pests and tree diseases, the control of floods and checking of soil erosion, all of which work is of direct public interest, and the value of which extends far beyond the boundaries of a given tract of land. The Federal Government was already authorized by Congress to cooperate with the States and private landowners in carrying on work of this kind.

Previous Relief Camps

Forest-work relief camps were not entirely a new experiment. They had been operated with great success recently in California, Colorado, the Lake States, New England, New York, Pennsylvania, and other States. Many such camps, operating in the national forests under the supervision of the United States Forest Service in cooperation with

States, municipalities, and private charities, had furnished forest work to men who were given subsistence by these agencies for themselves and in many cases additional subsistence for their dependents.

In the Emergency Conservation Work program, the Nation's forest resources have been called upon as a means of prompt, effective, large-scale relief for unemployment. The program has had a double purpose—to build forests and to build men. It has given thousands of young men a chance to face the world with a new purpose; at the same time it has improved our forest resources.

CHARLES E. RANDALL, *Forest Service.*

FARM and Nursery Products Move Long Distances Under Japanese-Beetle Certification The wide extent of territory to which articles restricted under the Japanese-beetle quarantine regulations are shipped each year shows that the regulations do not prevent or seriously interfere with the interstate movement of nursery stock and farm products.

According to the 1930 census figures 1,654 nurseries and 6,436 establishments growing flowers and vegetables under glass, or flowers in the open, were reported as being located in States now wholly or partly under quarantine for this pest. All such establishments located in infested territory are potential shippers of plant material likely to harbor beetle infestation. Returns by these establishments submitted to the Census Bureau show that their lands and equipment were valued at over $130,000,000. Reported receipts from the sale of products aggregated $72,000,000. Among these nursery and greenhouse establishments nearly 2,400 handle their products in such a way that freedom from Japanese-beetle infestation can be assured. These firms market their products, at least in part, in uninfested territory. Many of them do a Nation-wide business. Their beetle-free stock is eligible for shipment under a Federal certificate showing compliance with the requirements of the quarantine. Thus certified, nursery and greenhouse products may be moved legally in interstate commerce under the same provisions as similar material originating in uninfested States. As long as a Federal quarantine is maintained, material produced in an infested zone but certified as complying with the quarantine regulations is eligible for interstate transportation to noninfested States without discrimination.

Nursery stock with soil, the commodity in which grubs of the Japanese beetle are believed to have arrived in this country, continues to be the medium which offers the greatest possibility for long-distance spread of the pest. Sand or soil in bulk, or any plant life accompanied by soil, such as potted plants, or grass sod, are equally dangerous carriers of the insect in its larval stage.

No Single Treatment Always Effective

There is no single method of plant culture or chemical treatment which may be practiced to rid all plant material of possible infestation. It is practicable to ship some plants free from soil. Field-grown nursery stock of many species may be assured freedom from infestation by the application of lead arsenate to the soil in the plot. Applied at the rate of 1,500 pounds per acre, the poison kills the Japanese-

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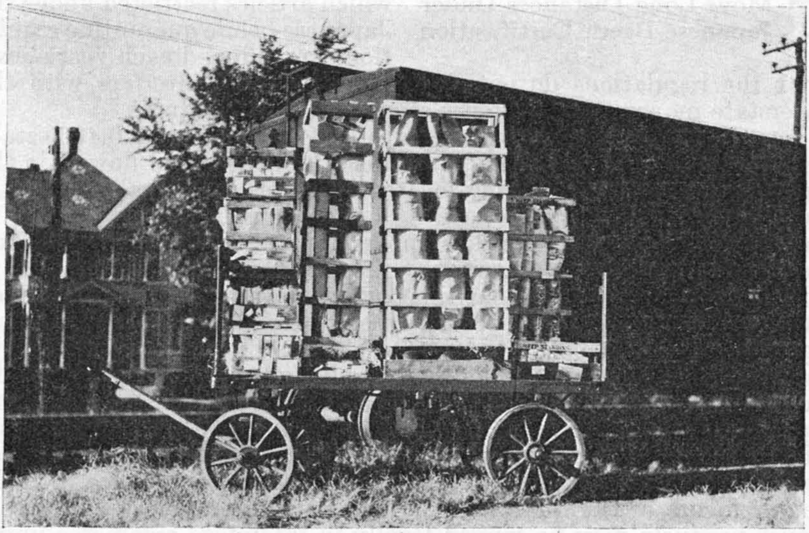

FIGURE 40.—Certified nursery stock ready for shipment to uninfected areas.

quirements does not constitute a burdensome handicap affecting their ability to compete with producers in nonquarantined States.

Of the quarantined material shipped under certification, only stock moved from premises exposed to Japanese-beetle infestation is itemized as to individual contents of a shipment. Records are not kept of the number of plants shipped from premises located in the regulated areas but found to be uninfested.

During the fiscal year 1933 quarantined articles were shipped under certification to every State in the Union and to many foreign countries (see fig. 40). The largest quantity shipped from infested establishments to a nonquarantined State consisted of approximately 1,150,000 plants destined for Ohio. Georgia received 875,000 items of nursery and greenhouse stock, and approximately 750,000 plants were consigned to points in each of the following States: Texas, North Carolina, and Virginia. Illinois and South Carolina each received approximately 500,000 plants. States which received between 250,000 and 500,000 plants each were West Virginia, Michigan, Florida, and Alabama. Shipments to Maine, Tennessee, Indiana, Oregon, California, Iowa, Missouri, Wisconsin, Louisiana, and Vermont ranged from 100,000 to

175,000 plants. Certified shipments amounting to between 50,000 and 100,000 plants moved to each of the States of Kentucky, New Hampshire, Minnesota, Oklahoma, and Nebraska. The remaining nonquarantined States received fewer than 50,000 plants each. A total of 2,650 plants shipped to Wyoming was the smallest quantity distributed to an individual State. Shipments under certification to Canada, Cuba, Hawaii, Puerto Rico, and Alaska totaled 120,000 plants.

Geographically, the largest quantity of plants was certified for movement to the South Atlantic States, in excess of 3,500,000 items of plant material having been shipped to those States. The East North Central States received the next largest number, totaling in excess of 2,300,000 plants. Nonregulated territory in the New England States received almost 1,500,000 certified plants. West South Central States were destination points for nearly 1,000,000 plants, while the East South Central States received over 600,000. Consignees in the West North Central States received about 500,000 plants. Approximately 350,000 plants moved to the Pacific States during the year. Of the geographic divisions of the country, the Mountain States received the smallest number of certified plants, about 85,000 being sent under certification to these nine Western States.

Value of Sales of Restricted Products

Restricted nursery and greenhouse products certified for movement from infested establishments during the fiscal year 1933 had a retail value of nearly $11,000,000. Comparing this amount with the census figures as to the total value of such products, it appears that plant growers in quarantined sections derived approximately 15 percent of their income from sales to nonregulated sections. Shipments to uninfested sections of the country thus furnish an important outlet for plant material grown in quarantined zones under beetle-free conditions. Were the horticultural trade in infested States to be deprived of even a portion of its Nation-wide market, such restraint might seriously affect its margin of profit.

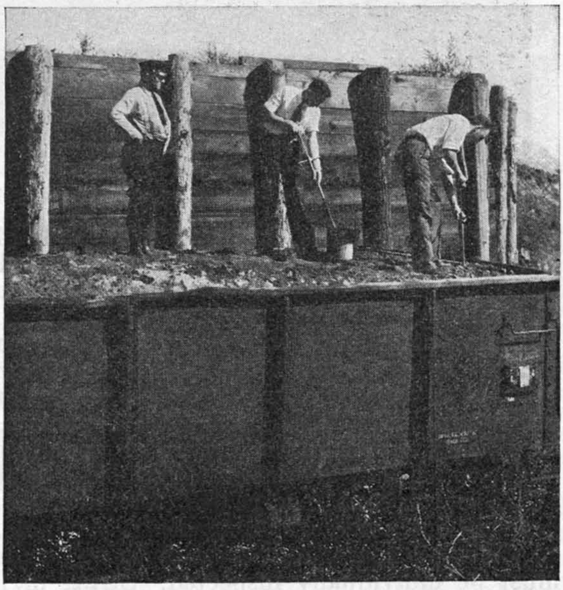

FIGURE 41.—Sand exposed to infestation is fumigated with carbon disulphide before being moved under certification to nonquarantined States. During the flight of the adult Japanese beetle this material must be loaded in closed cars before being fumigated.

Sand, soil, earth, and peat may be shipped under certification if, in mining or digging, the upper 12 inches of surface soil are removed, or if the material is protected from infestation in certain other ways, but if not it must be fumigated or sterilized (see fig. 41). Sand and soil to the extent of 3,809 carloads were certified for movement into 23 nonquarantined States last year. Over 500 certified carloads were admitted to Canada, the Canadian plant-pest authorities accepting Japanese-beetle certification in the same manner as do the uninfested States in this country. Of the nonquarantined States for which this material was destined, Illinois led with 639 carloads. Other uninfested States receiving large quantities of these natural products were West Virginia, 293 carloads; Ohio, 265 carloads; California, 185

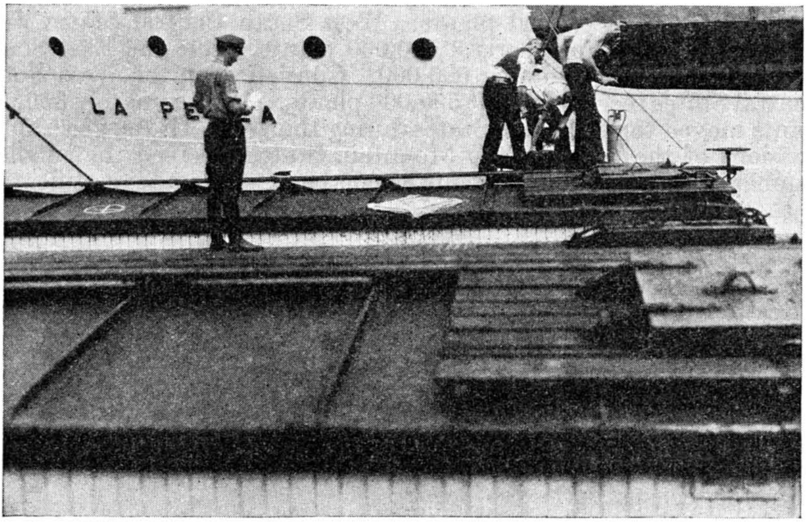

FIGURE 42.—Fumigating a carload of bananas with hydrocyanic acid gas to destroy Japanese beetles.

carloads; Kentucky, 158 carloads; and Michigan, 119 carloads. Eighty-three carloads of peat were shipped under certification to nonregulated territory in 14 States. California and Ohio each received 11 carloads.

Adult beetles may infest certain fruits and vegetables when the produce is harvested, or the insects may crawl into the produce in an infested market. So far as possible, certification is granted for vegetables and fruits on the basis of an inspection of the fields or orchards in which the articles are grown, or upon approval of the conditions under which they are packed or graded. In the absence of infestation at the source, containers of quarantined fruits and vegetables are certified without actual handling of the products. Most shipments from an unknown source and most of those produced on an infested farm must be individually inspected. String or lima beans may be run through a mechanical beetle separator. This separator has proved more effective than visual inspection in removing any adult beetles present. Fumigation with carbon disulphide is practiced with raspberries, blackberries, and blueberries. When required, carloads of bananas are fumigated with hydrocyanic acid gas (see fig. 42).

Fruits and vegetables subject to regulatory measures were shipped under certification to all the principal mid-western markets and to many Southern and Western market centers. Certificates were granted, covering 3,629,434 packages of produce, having an estimated value of $3,400,000.

Quarantined fruits and vegetables among ships' stores on vessels sailing from regulated ports to noninfested ports in this country also are certified. Inspected produce was used to provision steamships destined for most of the Atlantic and Gulf coastal ports and for the principal Pacific coast ports of call.

Lima and String Beans Most Infested

Lima and string beans were the most heavily infested of the farm products offered for certification. Drought conditions during June in Mid-Western States resulted in an exceptional demand in distant markets for beans grown in southern New Jersey, eastern Pennsylvania, and the Baltimore section of Maryland. Advantageous prices for beans in St. Louis, Chicago, Detroit, Indianapolis, Cleveland, and Cincinnati occasioned an unprecedented demand for inspection and certification of these commodities. This unusual demand was met, and the bean growers were able to realize substantial profits over the prices they would have obtained at markets within the infested zone.

While discharging its obligation to prevent the spread of the Japanese beetle to uninfested States, the Department has not neglected its duty of providing growers in infested sections with ready means whereby they may market their products unhampered by unnecessary restrictions.

L. H. Worthley, *Bureau of Plant Quarantine.*

FARM Structures Last Longer if Given a Preservative Treatment Decay of wood takes a heavy toll from the farmer. It works silently, and its presence is unnoticed until the damage is done. Rotting fences, buildings, poles, vine stakes, culverts, and the like increase the cost of farming and the amount of unproductive labor the farmer must put in to keep his structures in repair. Much of this expense and labor can be avoided by the proper use of wood-preserving chemicals, which make the wood poisonous to the fungus organisms that cause decay.

If it were possible to keep the wood entirely away from the ground and in a dry condition, it would not decay; but much of the wood used on farms must be in contact with the ground in order to serve its purpose. The heartwood of some woods that are highly resistant to decay will last a long time, even under the most unfavorable conditions. Farmers who have a plentiful and cheap supply of black locust, Osage-orange, southern cypress, cedar, redwood, or chestnut are fortunate, for these woods are highly resistant to decay. Those who must use woods of low or only moderate durability must either make repairs more frequently or must use some artificial method of making the wood last longer.

Good, sturdy heartwood posts of Osage-orange or black locust may last a lifetime. The other durable woods named may last anywhere from 10 to 25 years. In many localities, however, the only posts readily available or cheap are pines, firs, spruces, aspen, cottonwood, and various other nondurable species, which may last only 1 to 5 years.

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Fences supported by such posts are likely to need extensive repairs every year. Thorough preservative treatment with coal-tar creosote will make posts of any of these last longer than untreated cedar (fig. 43). A 20-year life can readily be obtained if the treatment is sufficiently thorough.

The small portable hog houses and chicken houses that are used on so many modern farms are quickly damaged by decay. Their life may be greatly extended, however, by treatment with coal-tar creosote. Best results will be obtained by cutting all the boards to finished dimensions and treating them before they are assembled. Cutting lumber after treatment is bad practice, for it exposes the untreated interior of the boards to decay. Creosote is especially suitable for the treatment of animal houses because not only is it effective against decay but it is also discouraging to insect life. A thoroughly creosoted house is a more sanitary place for the animals than an untreated house.

Sidewalks, gates, well curbing, and stable floors are other excellent uses for creosoted wood. The danger or rapid decay in sidewalks and stable floors is obvious. It is not so often recognized that much of the difficulty encountered with wooden gates is the result of decay, but close examination of a sagging gate will often show sufficient decay around bolt holes, in joints, or in the supporting posts to cause the trouble.

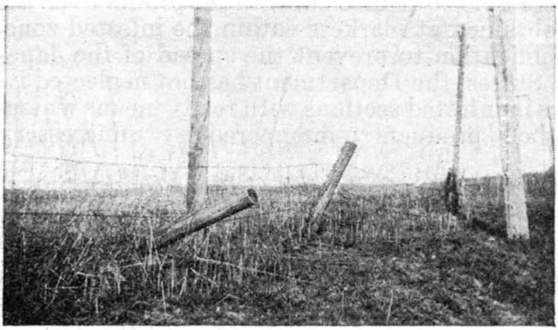

FIGURE 43.—Preservative treatment would have kept these high-class posts in service many years longer.

Creosoted wood is very likely to stain through any light-colored paint applied to it, although aluminum paints are less affected than others. For wood that must retain its natural color or that must be painted, some other preservative than creosote must be used. Zinc chloride solution is the preservative most commonly employed in such cases, although there are several others of similar properties. Zinc chloride is soluble in water and is therefore not suitable for wood that is to be used where the preservative can wash out in a few years. It is very suitable, however, for locations where the wood is merely damp or is seldom thoroughly wet.

Treating Methods

Brush application is the simplest method of applying preservatives but also the least effective. Surface applications of creosote may extend the life of a post for a year or two, but surface applications of zinc chloride solution have little, if any, value. Pressure treating in plants built for the purpose is most effective but not often available to the farmer, and only a few lumber yards carry pressure-treated posts and lumber. It is usually necessary, therefore, for the farmer to do his own treating. This can be done effectively by the open-tank hot-and-cold-bath process, in which the wood is heated in the preservative for 2 to 6 hours and then allowed to cool for 4 to 8 hours, or preferably overnight. The details of tanks and of the treating process are given in United States Department of Agriculture Farmers' Bulletin 744, The Preservative Treatment of Farm Timber. Next to pressure treatment, hot-and-cold-bath treatment is best. It has thoroughly demonstrated its effectiveness during the last 25 years, and when properly done gives reliable results.

GEO. M. HUNT, *Forest Service.*

FARM Woods Afford Poor Forage and Deteriorate Rapidly When Overgrazed Pasture land in the Corn Belt has been greatly reduced in area because a large percentage of the available land has been devoted to raising grain and forage crops, most of which are fed on the farm. Because it is more profitable to feed the grain than to ship it, the livestock industry has become of major importance in the region. Frequently, however, the only pasture land available is that afforded by the farm woods.

It has been estimated that in the better agricultural sections of the Corn Belt there is less than 1.8 acres of pasture land per cow unit. Assuming a 6-month grazing period, this indicates a stocking of nearly twice the computed carrying capacity for good bluegrass pastures. Serious overgrazing is evident; in fact, many farmers report that their native pastures are incapable of supporting half the livestock they formerly did. The wooded pastures, amounting in many counties to more than 35 percent of the pasture land, are even more seriously injured.

Continued grazing of woodland has a disastrous effect not only upon grass cover but also upon tree growth and regeneration. As a result of long-continued overgrazing in the Corn Belt, fully 50 percent of the farm woods are no longer capable of yielding forest products, and the majority are threatened with almost total extinction. The death or the removal of mature trees, combined with the absence of young growth, is gradually converting these areas into open pastures. The most intensively cultivated agricultural sections are faced with practically complete denudation of forest.

There are many economic, agricultural, and sociological reasons for the preservation of the remaining area of farm woods in these sections, if not for their extension; and any comprehensive forestry program for the Central States must include the permanent solution of the grazing problem. One of the first steps in this direction is to determine whether the farm woods of the Corn Belt are capable of furnishing any material amount of forage under the conditions of very heavy overstocking which prevail throughout the region.

Grazing-Capacity Tests

In 1931 a 3-year study was initiated by the Central States Forest Experiment Station and the Purdue Agricultural Experiment Station to determine the actual carrying capacity of farm woods in terms of forage acres. A rather open oak-hickory woodland located on the Pinney-Purdue Farm near Valparaiso, Ind., was divided into three tracts of 18, 12, and 6 acres each. These tracts were fenced off, and three yearling steers were placed in each, thus providing grazing intenhours and then allowed to cool for 4 to 8 hours, or preferably overnight. The details of tanks and of the treating process are given in United States Department of Agriculture Farmers' Bulletin 744, The Preservative Treatment of Farm Timber. Next to pressure treatment, hot-and-cold-bath treatment is best. It has thoroughly demonstrated its effectiveness during the last 25 years, and when properly done gives reliable results.

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There are many economic, agricultural, and sociological reasons for the preservation of the remaining area of farm woods in these sections, if not for their extension; and any comprehensive forestry program for the Central States must include the permanent solution of the grazing problem. One of the first steps in this direction is to determine whether the farm woods of the Corn Belt are capable of furnishing any material amount of forage under the conditions of very heavy overstocking which prevail throughout the region.

Grazing-Capacity Tests

In 1931 a 3-year study was initiated by the Central States Forest Experiment Station and the Purdue Agricultural Experiment Station to determine the actual carrying capacity of farm woods in terms of forage acres. A rather open oak-hickory woodland located on the Pinney-Purdue Farm near Valparaiso, Ind., was divided into three tracts of 18, 12, and 6 acres each. These tracts were fenced off, and three yearling steers were placed in each, thus providing grazing intensities, respectively, of 1, 0.67, and 0.33 acre per head per month for a 6-month season, starting May 1 and terminating October 31. The animals were kept adequately watered and salted, but no supplementary feeding was provided. Weighings were made at biweekly intervals, with extra weighings at critical periods.

During the first season's tests the largest tract, grazed on the basis of 1 acre per steer per month, permitted fairly consistent gains averaging 1 pound per head daily for the first 3 months. This gain, however, was almost entirely lost during the last half of the summer, and when the animals were removed on October 31 they showed an average gain of only 0.17 pound per day. Similarly, on the second tract, grazed on the basis of 0.67 acre per steer per month, fairly consistent gains of 0.8 pound per head per day were maintained until September 1, after which the weights dropped sharply, and the animals showed an average loss of over 30 pounds at the end of the season. The animals in

FIGURE 44.—Livestock in such pastured farm woods soon starve unless given supplementary feeding, and future values in forest products are seriously reduced by this profitless grazing.

the third tract, grazed on the basis of 0.33 acre per steer per month, were unable to make any consistent gains even during the early part of the season, and it became necessary to remove them after 3 months to prevent loss of weight beyond the point of recovery.

As was expected, the results of the second season's tests indicated an even lower carrying capacity for all three tracts. Gains during the early part of the season for the 18-acre and 12-acre tracts were neither as great nor as long maintained as the previous year, and the animals in the 6-acre tract had to be removed on July 15 to prevent starvation. At this writing the third-year tests had not been completed, but the weighings taken indicated a further decline in carrying capacity. The animals in the 6-acre and 12-acre tracts were removed on June 15 and July 25, respectively, to prevent starvation. Even in the 18-acre tract the gains have been small and erratic, and it may be necessary to remove the animals prior to the close of the 6-month season.

The experiment is expected to yield valuable information when it is completed and the data are thoroughly analyzed. It will include not only material on the carrying capacity of farm woods, but also additional evidence on the effect of the various intensities of grazing on the vegetative and tree growth found in the tracts (fig. 44). It is perfectly clear at this time, however, that none of the three intensities of grazing used was sufficient to provide for consistent livestock gains over the entire 6-month grazing season. Observations, supported by the weighings thus far recorded, indicate that in this particular type of farm woods a minimum of 2 acres per head per month would be required to maintain an average daily gain of 1 pound per steer per day. On this basis alone, and without consideration of the effect on the woods itself, the average farm woods is being overgrazed by at least seven times its carrying capacity. It is obvious that under such conditions and without supplementary feeding, the animals would soon starve to death.

RALPH K. DAY, *Forest Service.*

FARM Youth, Lacking City Opportunities, Face Difficult Adjustment Many people in a large group, peculiarly affected by the economic depression, have been overlooked, despite the fact that they deserve special consideration, for upon them the Nation must depend largely in the future for the maintenance of its strength. These people, almost forgotten because their need is less acute than is that of many urban unemployed, are the young people on the farms who would, under normal conditions, have found work in the cities.

Between 1920 and 1930 the net migration from the farms, mostly to the cities, was about 6,000,000, an average of 600,000 a year. Probably three fourths of these migrants were under 35 years of age. They were not needed on the farms to produce food and fiber, for production of these commodities during the decade prior to this depression was larger than could be sold at a fair price. But in 1930, as work became scarce in the cities, the migration from the farms diminished, while the migration to the farms from the cities increased somewhat, with the result that arrivals on farms exceeded departures by a few thousand. In 1931 the net movement to farms rose to more than 200,000, and in 1932 it was more than 500,000. This increase, however, was the result of the great decline in the migration from the farm to the cities and not the result of an increase in the migration from the cities to the farm. Figures are not yet available for 1933, but the indications point to a decrease in the farmward migration, doubtless in part because those who have relatives and friends on farms who are willing to receive them have nearly all returned.

A large proportion of the unemployed now in cities were born in cities or left the farm many years ago. They are therefore city people with city ways, city hopes, and city inaptitude for farm life. Moreover, these city people are rapidly growing older, and a large proportion are becoming increasingly unfitted for such heavy work as farming. There were 51 percent more people over 65 years of age in the urban population of the Nation in 1930 than in 1920, and the increase during 1930–40 may be fully as great. Simultaneously the number of children in the cities is decreasing rapidly. In 1930 over 8 percent of our population consisted of children under 5 years of age, while only 5 percent

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On the other hand, the number of young people on farms is increasing. Let us assume that during the next 6 years there will be a slight net movement from the farms back to the cities, but only enough to balance the net movement to farms during the years 1930–33; in other words, that no net migration from farms occurs during the decade 1930–40. In this case, there would be about 2,250,000 more males over 20 years on farms on January 1, 1940, than there were on January 1, 1930; and if the same proportion of these males operate farms as were operating farms in 1930, there would have to be about 1,200,000 more farms in the Nation in 1940 than in 1930. Some allowance must be made, however, for the fact that the men who return to the farms from the cities are older than those who leave the farms for the cities. After this allowance is made, there is indicated a need for more than a million new farms by 1940, on the assumption that there is no net migration of people from farms to cities during the decade 1930–40.

Now, a million new farms would be an increase of nearly one sixth in number of farms. If this development should occur without aid or direction, two things are likely to happen:

(1) Subdivision or joint operation of many farms; if a farmer has 2 sons, instead of 1 going to town, both will now remain on the farm.

(2) Reoccupation of abandoned farms and the clearing of forests from much poor, sandy, or mountain land, for, frequently the birthrate is highest and the population densest where the soils are poor, and there are many ambitious young people in rural regions whose fathers do not own farms. Such extension of crop production onto poor land would mean in many cases increased losses of soil fertility by erosion, increased production of farm products at a time when such products would tend to depress prices, decreased income for farmers, and a declining standard of living.

Three Possibilities Indicated

How are these conditions to be avoided? There appear to be three major possibilities in the situation:

(1) Employment in the cities may become available for the youth from the farms, with the return of prosperity. But a resumption of this farm-to-city migration will accelerate the decline in the birthrate and hasten the approach of a stationary national population, since these youths who go to the cities will have, in all likelihood, only one half to two thirds as many children as they would have had on the farms.

(2) Decentralization of industry may enable many young people to migrate from the farms to villages and small towns, instead of to the cities. It is even possible that farmers and their families, using modern looms and similar machinery, can produce at home some kinds of manufactured goods for the use of themselves and their neighbors instead of buying these goods at retail in the stores. But whether such decentralization of factories, accompanied, perhaps, by development of home industry, will take place rapidly enough to provide work for the accumulating surplus of young people on the farms is doubtful.

(3) Nearly all the farm youth may become farmers, with the consequences previously noted, unless the Government helps them to find farming opportunities, possibly of a type that will not contribute greatly

to production for sale. These young people have little information as to where it is best to locate, and if they had such information, many of them have so little money that they could not buy good farms, or even rent them, unless they are well known in the neighborhood. Unguided and unaided, some of them will soon be compelled to clear the forest or plow up the prairie sod and bring the land under crop.

The average age of the farmers of the Nation is increasing. In 1910 about 28.9 percent were under 35 years of age; in 1920 this proportion had fallen to 26.9 percent, and in 1930 to 23.4 percent. On the other hand, 23.6 percent of the farmers in 1910 were over 55 years old; in 1920 this proportion had increased to 24.8 percent, and in 1930 to 28.6 percent. Many of these farmers over 55 years of age would like to retire. But since farm youth lack capital, particularly after these 13 years of economic depression, few are able to buy farms. Partly as a consequence of this, city people and institutions appear to be owning an increasing portion of the Nation's farms.

How to facilitate the transfer of land from one generation of farmers to the next is a subject which urgently deserves study and speedy action. It may well be that the Government can perform a very real service in guiding and financing the purchase of farms by capable farm youth. This service not only will benefit these individuals, but also will contribute to the welfare and stability of the State. America has been called the land of opportunity. It must remain a land of opportunity for the youth if it is to continue to be America.

The old people should be encouraged to remain on the land, retaining the old home or building a new one nearby, or on the edge of a neighboring village, for frequently retired farmers fail to find happiness in the cities. Moreover, migration of farm youth as well as of retired farmers to the cities has transferred many billions of rural wealth to urban centers. This is a drain which the rural people should endeavor to diminish.

O. E. Baker, *Bureau of Agricultural Economics.*

FERTILIZERS May Add to Soil Acidity; Neutral Mixtures Desirable Many of the commercial fertilizer ingredients, especially the nitrogenous materials, as well as the majority of the mixed fertilizers sold during the past few years, have been acid forming. Usually no marked harmful effect from such acidity was observed where such materials were used at moderate rates and for only 1 or 2 seasons. On the other hand, their long-continued use, especially on soils already rather acid and on which liming was not practiced, frequently resulted in a marked increase in acidity, and a consequent lowering of the efficiency of the fertilizers. A growing appreciation of these facts has stimulated the interest of the fertilizer manufacturer and the farmer in the production and use of neutral mixtures.

This brings up the question of what is the residual effect of the different types of fertilizer materials. It is well recognized that the usual sources of potash, such as kainit and sulphate and muriate of potash, have little effect on soil reaction. These materials are not only neutral but undergo no changes in the soil which would appreciably affect the reaction.

The phosphate carriers vary considerably in their effects. Materials such as superphosphate in which the phosphate is present largely as to production for sale. These young people have little information as to where it is best to locate, and if they had such information, many of them have so little money that they could not buy good farms, or even rent them, unless they are well known in the neighborhood. Unguided and unaided, some of them will soon be compelled to clear the forest or plow up the prairie sod and bring the land under crop.

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The phosphate carriers vary considerably in their effects. Materials such as superphosphate in which the phosphate is present largely as monocalcium phosphate, have little effect on soil reaction. Di- and tricalcium phosphates exert a basic and not an acidic effect. Ammonium phosphate, however, increases acidity, as do the other common ammonium fertilizer salts, as explained below. The fact that superphosphate, a monocalcium phosphate, produces little effect upon the soil reaction when applied to soils in the humid region, is due primarily to the fact that phosphoric acid is a weak acid and only a partial displacement of its acid ions is necessary in order to produce a material having an acidity corresponding to a pH of 5 to 6, which is common for most soils of this region.

The nitrogen carriers are responsible for most of the fertilizer acidity effects, but not even all of these are acid forming. The nitrate fertilizers, in which the nitrate is combined with sodium, potassium, or calcium, decrease soil acidity because the nitrate ion is absorbed by the plant largely apart from the bases, leaving the latter to exert their full basic action. Cyanamid also exerts a basic effect, because of its content of calcium present both as hydroxide and as cyanamide.

Most of the nitrogenous fertilizers that contain their nitrogen in the form of ammonium salts, such as ammonium sulphate, ammonium chloride, and ammonium phosphate, are very acid producing. Whereas plants may absorb some of the ammonia directly, leaving the mineral acids in the soil, probably most of it is nitrified and taken up by plants as nitrate. The resulting effect on soil acidity is essentially the same in the two cases. If much of the nitrogen is leached out, however, the acidifying effect is greater following nitrification.

There is considerable variation among the organic nitrogenous fertilizers with regard to their effects on soil reaction. If the nitrogen of these materials is wholly taken up by plants, most of them do not increase acidity, and many even exert a slight basic effect, due to the calcium and other basic elements present. Loss of the nitrogen by leaching, after the materials have nitrified, will, however, result in a much greater acidifying effect since bases equivalent to the nitrates formed are then removed. While the effect of each material must be determined separately, it may be stated in a general way that most organic nitrogenous fertilizers, as used under practical conditions, are only slightly, if at all, acid forming.

Leaching is Biggest Variable Factor

An accurate statement as to the exact effect of a given quantity of nitrogenous fertilizer on soil reaction cannot be given because of the wide variations in soil conditions and farming practices. The most variable factor is leaching. If ammonium sulphate, for instance, nitrifies in the soil, an acidity corresponding to both the sulphuric acid and the nitric acid formed, results. This acidity, which would require 150 pounds of calcium carbonate per 100 pounds of ammonium sulphate for neutralization, is all permanent if the nitrates are removed by leaching. On the contrary, if the nitrogen is absorbed by the plants the final acidity corresponds closely to the sulphuric acid added and not to the sulphuric plus the nitric acid, because the plants take up the nitrate nitrogen largely apart from the soil bases. Under field conditions leaching always occurs, and so ammonium sulphate causes an acidity corresponding to all of the sulphuric acid present plus a fraction of the nitric acid formed. Some investigators in considering the manufacture of neutral fertilizers have recommended that any nitrogen added that is capable of being converted into nitric acid in the soil, such as urea, ammonia, or organic nitrogen, be assumed to have an acidifying effect corresponding to half the nitric acid that may be so formed. In addition, the acidity due to mineral acids present, such as sulphuric in the case of ammonium sulphate, which act as carriers of the nitrogen, would be calculated at full value; likewise, any mineral bases, such as the sodium in sodium nitrate, would be considered as exerting their full neutralizing effect. Fertilizer mixtures, compounded on the basis of these assumptions, should exert no appreciable effect on soil reaction under ordinary conditions of use.

A factor, commonly overlooked, is the effect of the crop itself in increasing soil acidity, wholly apart from the fertilizer used. Analyses of farm crops show that the quantity of mineral bases present is greater than the quantity of mineral acids. The larger the crop, then, the more of the basic materials removed and the more acid the soil becomes. Certain crops, particularly many legumes, are known as calcium-loving, while grain crops remove considerably smaller percentages of excess base. Strictly speaking, it is incorrect to consider this acidity as fertilizer acidity. This is well illustrated by reference to legume crops. A given weight of alfalfa will remove about the same amount of basic materials from the soil whether the nitrogen is supplied in the form of urea, for example, or whether it is obtained from the air by means of nodule bacteria. In this particular illustration if we say that urea produced the acidity in the one case, we must also say that the atmospheric nitrogen produced it in the other. It would seem more logical to attribute the acidity to the crop in both instances. This point need not particularly concern the fertilizer manufacturer, but is of considerable scientific interest and helps to explain why higher acidities than would otherwise be expected are sometimes observed following the use of fertilizers.

While fertilizer acidity is important, and the growing tendency to manufacture neutral mixtures should be encouraged, it should always be borne in mind that in the humid region the natural leaching out of soil bases, mostly in the forms of carbonates and nitrates, is commonly responsible for the larger portion of the increase in soil acidity. The more basic the soil originally the greater is this loss of bases through these natural agencies. Even though neutral fertilizer mixtures are used, these losses will continue and should be compensated for by occasionally liming the soil.

FRANKLIN E. ALLISON,
Bureau of Chemistry and Soils.

FERTILIZER Studies Show Important Possibilities in Ammoniated Peat

Fertilizers as first employed consisted principally of decomposition products from vegetable and animal residues. The effectiveness of such substances in promoting plant growth was due largely to their contained nitrogen. Organic nitrogenous materials of both plant and animal origin have always been employed in the manufacture of mixed fertilizers and until recently have contributed the major portion of the nitrogen used for this purpose. The amount of high-grade materials available for such use has diminished gradually because of that any nitrogen added that is capable of being converted into nitric acid in the soil, such as urea, ammonia, or organic nitrogen, be assumed to have an acidifying effect corresponding to half the nitric acid that may be so formed. In addition, the acidity due to mineral acids present, such as sulphuric in the case of ammonium sulphate, which act as carriers of the nitrogen, would be calculated at full value; likewise, any mineral bases, such as the sodium in sodium nitrate, would be considered as exerting their full neutralizing effect. Fertilizer mixtures, compounded on the basis of these assumptions, should exert no appreciable effect on soil reaction under ordinary conditions of use.

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New developments in the fertilizer industry have also changed the relations of organic materials to mixed fertilizers. The development of nitrogen-fixation processes, with the resultant production of large supplies of nitrogen products at low prices, has been an important factor in reducing the use of organic materials in fertilizers. The change in the constitution of mixed fertilizers is such that in 1931 only 18 percent of the nitrogen was derived from organic sources and 60 percent was derived from ammonia and its compounds, in contrast to 91 percent from organic sources in 1900.

The possibility of establishing an adequate supply of organic nitrogen depends upon the utilization of some abundant source of organic

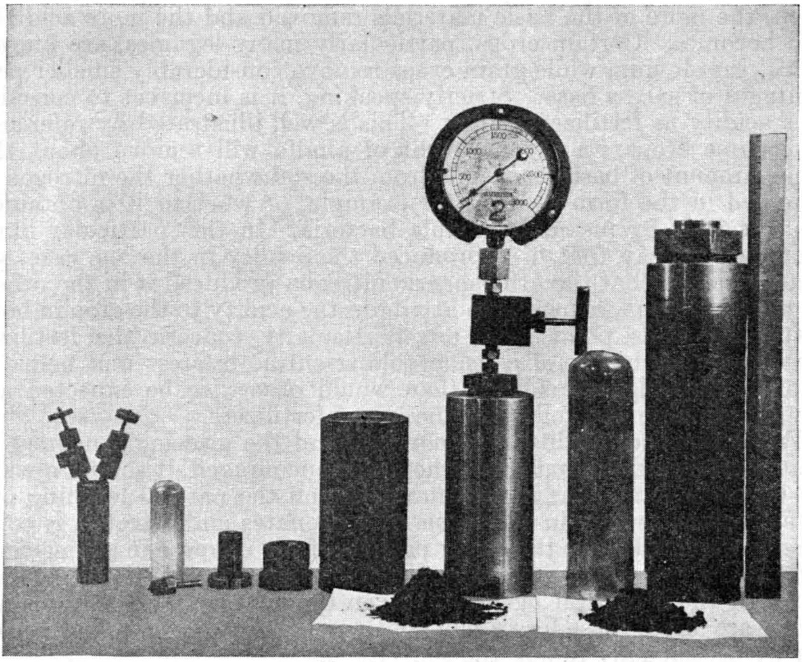

FIGURE 45.—Small bombs and accessories used in ammoniation of peat.

material as a carrier of the cheap ammonia produced synthetically. Peat is a promising material for use as such a carrier because of its occurrence in large quantities in this country, and its comparative noncommercial value at present. A relatively insignificant amount is utilized, principally as a conditioner in mixed fertilizers and in greenhouse work or other special cultural conditions.

Treating Peat with Ammonia

The nitrogen in natural peat, ranging from 1 to 4 percent, is a potential source of plant food if it can be rendered available. Numerous attempts have been made to accomplish this, but from a commercial viewpoint these have been unsuccessful, either wholly or in part. The object of the work in the Bureau of Chemistry and Soils was not only to render the original nitrogen available but to enhance the nitrogen content by treatment with ammonia. Peat was treated with liquid anhydrous ammonia, a number of different peats being used and the temperature, pressure, moisture content, and time of treatment being varied to determine the effect on the amount of nitrogen in the treated material (fig. 45). Where higher pressures were involved the peat and ammonia were placed in a steel container, and after being closed, the vessel was heated to the desired temperature. The product contained more nitrogen than before treatment, varying in amount with the imposed conditions. The temperatures employed varied from 50° to 300° C. and the pressures from atmospheric to 300 atmospheres. Different peats yielded products with a nitrogen content of 4 to 6 percent at 50°, 10 to 13 percent at 180°, and 14 to 21 percent at 300°. The greatest increase in nitrogen content occurs during the first few hours of treatment, though there is a gradual increase up to 20 hours. With 10-percent moisture the maximum nitrogen is obtained in the product, but more moisture decreases the nitrogen content. Increase in pressure increases the nitrogen content of the treated peat. The type of peat has some influence on the quantity of ammonia fixed, but the total nitrogen in the product is surprisingly close in different peats treated under similar conditions. No correlation has been observed between the acid or alkaline character of the peats and the amounts of nitrogen added.

Properties of Ammoniated Peat

The nitrogen in ammoniated peat is about one third water soluble and two thirds insoluble. Urea has been found to constitute nearly half of the water-soluble portion. In the insoluble portion the presence of ammonium, amide, and imide nitrogen has been established, but the character of 65 percent of the nitrogen has not been identified. Part of the nitrogen being insoluble indicates that it may supplement more soluble nitrogen compounds and be retained longer in the soil under conditions favoring loss by leaching. If it is found to be available for plant growth it will furnish an organic material that will meet the demand for the present diminishing supply of such fertilizer. Laboratory tests according to the A.O.A.C. methods indicate a high activity for the insoluble nitrogen, but it will be necessary to evaluate it as a fertilizer material from its availability as a plant food as determined through vegetative tests. Such tests are being conducted at several places by different cooperators.

The physical condition of the ammoniated peat indicates that it should be valuable for use in mixed fertilizers as a conditioner, preventing caking of mixtures on storage and causing them to retain a condition suitable for easy distribution in the field. It is a black granular material, apparently dry and easily powdered.

Economic Considerations

Should vegetative tests result favorably, commercial production of ammoniated peat seems promising from the standpoint of the cheapness and abundance of the raw materials. There are estimated by the United States Bureau of Mines to be 13,000,000,000 tons of deposits of peat with potential economic importance in the United States. It is distributed widely from Minnesota to Maine, along the Atlantic and

Gulf coasts from Maine to Mexico, and to some extent in the far West. Nearly half of this vast quantity occurs in Minnesota and 70 percent of the remainder in Michigan, Wisconsin, and Florida. The other raw material, ammonia, is one of the cheapest forms of nitrogen and the most abundant. It is easily shipped as anhydrous liquid in tank cars. In certain locations, such as Florida, where peat and phosphate rock occur close to each other, the preparation of the raw material, the ammoniation and the manufacture of mixed fertilizer might be carried out at the same place and in the immediate vicinity of an intensive fertilizer-consuming area.

R. O. E. Davis, *Bureau of Chemistry and Soils.*

FERTILIZERS Without Filler Cost Less and Meet Ordinary Needs

Between 1870 and 1880, when mixed fertilizers came into general use, they had a total plant food content of only 10 to 14 percent. Higher concentrations were commercially impractical then because the only materials available for making them were low in plant food. Such mixtures, in time, became firmly established as fertilizer grades.

During the past 50 years many changes have occurred in the materials used in making complete fertilizers. Some have almost disappeared, as for example poudrette and wood ashes. A large part of the production of other materials like animal tankage, fish scrap, and cottonseed meal, which at one time were used almost exclusively as fertilizers, has been diverted to other uses. At the same time methods of producing fertilizer materials have steadily improved so that the average plant-food contents of many of them have increased. For instance, superphosphate contained on an average 11 percent of available phosphoric acid in 1880 and 18 percent in 1932. The average potash content of kainit increased at the same time from 12.5 to 16 percent. In addition to the changes already mentioned, a number of new processes for making cheaper and better fertilizer materials containing high proportions of plant food have been developed. These changes have forced the industry to adopt one or the other of two courses or a combination of them. Manufacturers have either produced fertilizers of gradually higher analysis or have diluted the higher grade materials with more and more filler to produce the same grades that had already become well established in the trade.

The savings possible by using fertilizers containing 20 percent or more of plant food are not yet fully recognized, and therefore many farmers still buy 2–8–2 and similar 1880-style fertilizers because they have become accustomed to them through long usage. As long as farmers demand this grade of fertilizer, manufacturers will naturally supply them. In North Carolina alone in 1931 a half million tons of fertilizers were sold containing less than 14 percent of plant food calculated as nitrogen, phosphoric oxide, and potash. If no filler has been added to the materials known to have been used in making fertilizers in the country as a whole in 1931, the average complete mixed goods would have contained 21.1 percent of plant food. It actually did contain 17.9 percent. Therefore, 15 percent of all the mixed fertilizer sold in this country during that year consisted of added material which contained no nitrogen, phosphoric acid, or potash. It is also known that some fertilizer mixtures are more than one third filler. It

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R. O. E. Davis, *Bureau of Chemistry and Soils.*

FERTILIZERS Without Filler Cost Less and Meet Ordinary Needs Between 1870 and 1880, when mixed fertilizers came into general use, they had a total plant food content of only 10 to 14 percent. Higher concentrations were commercially impractical then because the only materials available for making them were low in plant food. Such mixtures, in time, became firmly established as fertilizer grades.

During the past 50 years many changes have occurred in the materials used in making complete fertilizers. Some have almost disappeared, as for example poudrette and wood ashes. A large part of the production of other materials like animal tankage, fish scrap, and cottonseed meal, which at one time were used almost exclusively as fertilizers, has been diverted to other uses. At the same time methods of producing fertilizer materials have steadily improved so that the average plant-food contents of many of them have increased. For instance, superphosphate contained on an average 11 percent of available phosphoric acid in 1880 and 18 percent in 1932. The average potash content of kainit increased at the same time from 12.5 to 16 percent. In addition to the changes already mentioned, a number of new processes for making cheaper and better fertilizer materials containing high proportions of plant food have been developed. These changes have forced the industry to adopt one or the other of two courses or a combination of them. Manufacturers have either produced fertilizers of gradually higher analysis or have diluted the higher grade materials with more and more filler to produce the same grades that had already become well established in the trade.

The savings possible by using fertilizers containing 20 percent or more of plant food are not yet fully recognized, and therefore many farmers still buy 2–8–2 and similar 1880-style fertilizers because they have become accustomed to them through long usage. As long as farmers demand this grade of fertilizer, manufacturers will naturally supply them. In North Carolina alone in 1931 a half million tons of fertilizers were sold containing less than 14 percent of plant food calculated as nitrogen, phosphoric oxide, and potash. If no filler has been added to the materials known to have been used in making fertilizers in the country as a whole in 1931, the average complete mixed goods would have contained 21.1 percent of plant food. It actually did contain 17.9 percent. Therefore, 15 percent of all the mixed fertilizer sold in this country during that year consisted of added material which contained no nitrogen, phosphoric acid, or potash. It is also known that some fertilizer mixtures are more than one third filler. It is impossible to make mixed fertilizers containing less than 14 percent of plant food with the ordinary materials available today without using large quantities of filler.

Some Filler Materials Not Worth the Cost

Some materials containing none of the usual plant foods have some value when added to certain fertilizers, but sand, sawdust, ground cork and coal ashes, all of which are used in large quantities, are not only not worth what they cost, but they increase the cost of the plant food bought and as a rule add nothing of value. Filler costs money. The manufacturer as a rule buys sand for this purpose, but even if it can be excavated from his own land the total cost may run as high as a dollar a ton. When 500 pounds of sand is added to 1,500 pounds of high-grade materials to make a ton of mixed fertilizer the farmer has to pay for this sand, as well as for about 30 cents' worth of extra sacks to hold it, one third more freight from the factory to the dealer, and other extra costs, all of which together increase the retail price from $3 to $5 for a ton of this kind of mixture.

The retail selling price of fertilizers is recorded in some States at the time inspectors gather samples for analysis in the control laboratory. These published prices and the corresponding analyses have been averaged by grades to determine the cost of a pound of each plant food when bought in various grades. It was found that in every State and every year the average cost per pound always decreased as the concentration of the fertilizer increased. The decrease in cost was always rapid until the plant-food content reached 18 or 20 percent, above which the decrease continued, but was usually slight. For example, the same number of pounds of plant food on an average cost about 20 percent more when 2–8–2 is bought instead of 3–12–3 fertilizer. By purchasing 4–16–4 a further saving of about 5 percent could be made as a rule. In other words, 6 tons of 2–8–2 in 1931 cost on an average about $144, while 4 tons of 3–12–3 cost $120, and 3 tons of 4–16–4 cost $115, but all of these lots contained the same quantities of plant food. Diluting fertilizers with filler is estimated to have cost the farmers of the United States about $7,000,000 in 1931 alone.

Very concentrated mixtures are sometimes prepared from such highly purified ingredients that they may be deficient in other elements of plant food such as calcium, magnesium, and sulphur, which though sometimes lacking are generally present in satisfactory quantities as impurities in mixtures containing the usual amounts of nitrogen, phosphoric acid, and potash. Mixtures containing 40 percent or more of the principal plant foods may very easily be prepared, however, so as to contain sufficient of these other elements to meet ordinary plant needs. When magnesium or some other element is required, the consumer is justified in paying more to get a mixture containing it, and dolomite and similar materials should not be considered as fillers in the ordinary sense. When the conditions are such that nothing but nitrogen, phosphoric acid, and potash are needed, the most concentrated fertilizer is likely to be the most economical.

In conclusion it should be repeated that large quantities of useless filler greatly increase the cost of fertilizers to the farmer. He has an opportunity to save money by giving more consideration to the cost per pound of plant food than to the cost per ton of fertilizer in making his purchases.

A. L. Mehring, *Bureau of Chemistry and Soils.*

FIRE-CONTROL Roads and Motorway Fire Lines in the Lake States Region Rehabilitation of the devastated timber lands in the Lake States region, under the provisions of the Clarke-McNary law, is primarily a protection and reforestation problem. Destructive logging methods of the past, followed by repeated fires, have rendered nonproductive millions of acres of the one-time highly productive timber lands in northern Michigan, Minnesota, and Wisconsin. Under present conditions the speculative value of these lands is not sufficient to justify the annual carrying charge, or to warrant their retention in private ownership.

Out of this vast area of denuded lands several demonstrational forest units have been created by the National Forest Reservation Commission. The reclamation of these lands under intensive forest management, in order to demonstrate the timber-growing possibilities of the region and to encourage the practice of forestry and the retention of the lands in private ownership for timber production, is the major objective of the Forest Service in the reforestation program now under way.

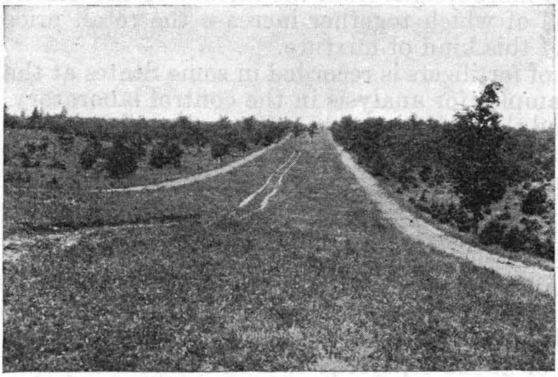
FIGURE 46.—Standard double firebreak, Huron National Forest.

These areas are largely of the sand-plains type, wherein destructive cutting, followed by numerous fires, has caused a conversion to grass and brush types of extremely high fire hazard. To overcome the fire menace and reduce the fire risk to a minimum, a transportation system of protection roads and motorway fire lines is being developed, together with a plan for the placement of firemen at strategic points, so that it will be possible to reach any portion of a given area within a safe allowable elapsed time after a fire is reported.

For the protection of plantations and such limited areas as support natural reproduction of jack and Norway pine, a system of motorway fire lines is being provided to facilitate fire suppression as an added insurance against loss by fire. This development is restricted, however, to the sand-plains areas of extremely high fire hazard, and the fire lines are so located as to block out areas of approximately 1 square mile. The fire lines consist of two graded strips, each 8 feet wide, having a 12-foot strip between them, which is cleared and otherwise developed to a low-standard motorway, suitable for truck travel at speeds of 10 to 15 miles per hour. The fire-line strips are so graded as to expose the mineral soil and are kept free of vegetation, leaves, and other accumulations of inflammable material by disking. They are designed to serve the dual purpose of a place to make a stand against an approaching fire, by back-firing or otherwise, and a low-speed road for the transportation of men, water, and other fire-fighting equipment.

The construction work is performed with caterpillar-type tractors and graders. Except to remove large stumps, very little blasting, clearing, or other hand work is required (fig. 46).

Some 300 miles of motorway fire lines have been constructed at an average cost of $158 per mile. A total of 1,100 miles, estimated to cost $165,000, is planned for the protection of the existing and proposed planting areas within the several forest units now under Forest Service administration.

Maintenance work is done on the fire-line strips once or twice each season, with a light track-type tractor and a tandem disk, at an average cost of $1 per mile of double line, per maintenance operation (fig. 47).

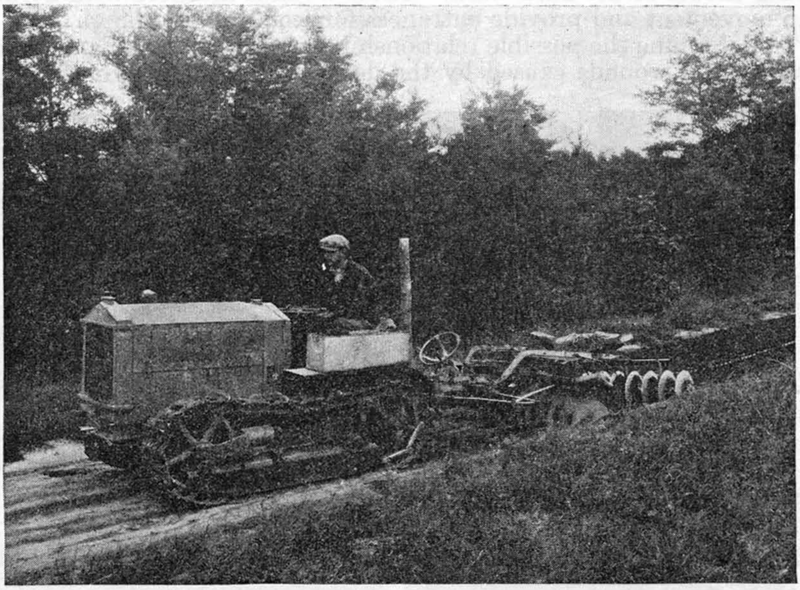

FIGURE 47.—Fire-line maintenance with tractor and disk.

The motorway fire-line system is being further supplemented with a sufficient mileage of somewhat higher speed protection roads to afford rapid transportation of fire crews and fire-fighting equipment. Such roads are suitable for light-car travel at speeds of 20 to 30 miles per

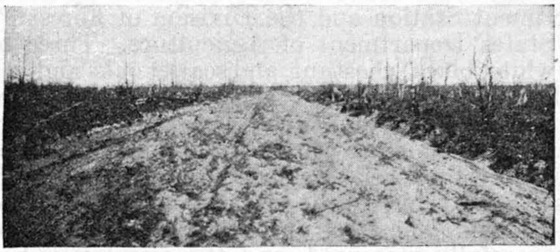

FIGURE 48.—Newly constructed protection road widened for fire control.

hour and truck speeds of 15 to 25 miles per hour. Within the areas of high fire hazard and risk these roads are turnpiked to a 26-foot width, and are kept clean of vegetation by grader maintenance, to insure their usefulness as a firebreak. During 1931, 160 miles of road of this type were improved or constructed to this standard at an average cost of $320 per mile (fig. 48).

H. COLEMAN, *Forest Service.*

FIRE Wounds Have Close Relation to Exterior Discoloration of Bark Fires in the hardwood forests of the southern Appalachian region seriously affect the health and vigor of the trees. Ground litter may be destroyed, seedlings and young trees may be consumed, and even the largest trees may be killed.

While such severe fires are the exception, even a moderate fire is very destructive. Intense heat from the burning litter kills the tender living tissues of the inner bark. These wounds interfere with normal sap movement and provide entrances for wood-rotting fungi.

To determine the possible relationship between exterior bark discoloration and wounds caused by the death of the inner living bark, a

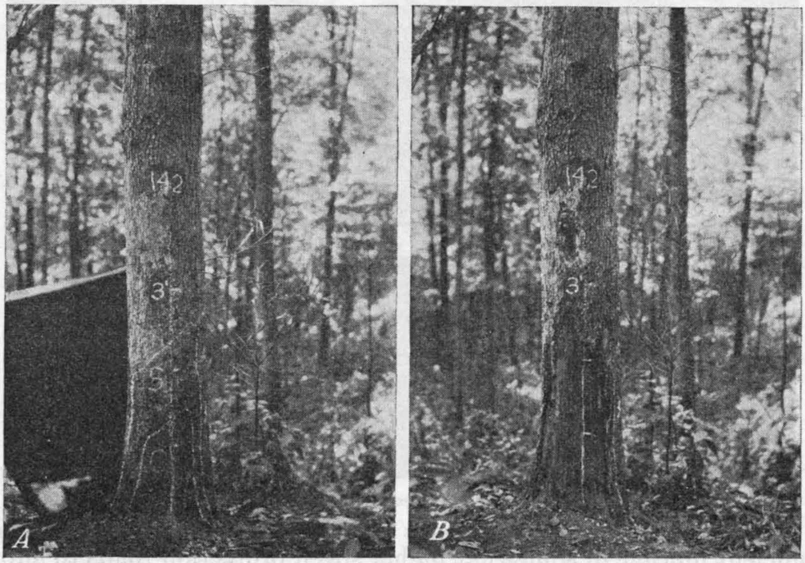

FIGURE 49.—*A*, Charred and scorched areas on white oak 11.4 inches in diameter breast high; *B*, the same tree with the bark removed to show the basal wound caused by fire.

cooperative study of basal fire wounds was made by the Appalachian Forest Experiment Station and the Division of Forest Pathology of the United States Department of Agriculture. Three hundred and fifty trees of white, black, chestnut, and scarlet oaks and yellow poplar, varying in diameter from 4 to 28 inches breast high, were examined. These trees had no crown damage or abnormalities other than a discolored area of bark caused by fire. By dividing the discolored areas into arbitrarily established classes—scorch, char, and burn—an attempt was made to classify the intensity of heat to which each tree had been subjected. The areas of external discoloration and internal wound were carefully measured, and the correlation between these areas and tree diameter was determined. Subsequent analysis of the data showed that predictions of the size of wound based on careful measurement of these classes of discoloration were only slightly more accurate than those based on total discoloration (fig. 49).

Resistance of Different Species

Of the five species examined, yellow poplar, one of the most valuable species in the southern Appalachians, was most resistant; chestnut, white, and black oaks were intermediate; and scarlet oak, considered one of the less valuable oaks, was most susceptible. There was a fairly high correlation between the area of discoloration and the area of wound for all but scarlet oak, which is so susceptible that the inner bark had been killed sometimes for 20 feet above the highest point of discoloration. Graphs prepared by statistical methods for each species show by diameter classes the relation between discoloration and wound. Taking trees with a diameter of 10 inches breast high as examples, a fire which causes 5 square feet of discoloration on the outer bark should produce on an average 1½ square feet of wound on yellow poplar, 3 square feet on chestnut oak, 4 square feet on white oak. 4½ square feet on black oak, and 7½ square feet on scarlet oak.

The relative order of resistance of the three intermediate species depends upon the diameter of the particular tree and area of discoloration which is selected as the basis of comparison. Scarlet oak, however,

FIGURE 50.—*A*, Areas of discoloration, burned, charred, and scorched on a black oak (117) and a scarlet oak (118), both 13 inches diameter, breast high; *B*, bark removed to show extent of basal wound associated with discolorations. Horizontal chalk marks are applied at 1-foot intervals.

always remains the most susceptible, and yellow poplar the most resistant, regardless of the size of the discoloration or the diameter of the tree.

The insulating properties of the bark influence the relative resistance of various species of trees. Within a species the tree with the thickest bark is afforded the best protection. Other factors such as bark character and structure are also of significance. Measurements of bark thickness made at 6 inches aboveground indicate that chestnut oak and yellow poplar have the thickest bark, scarlet and black oaks are intermediate, and white oak has the thinnest bark. Yellow poplar has an extremely thick layer of moist inner bark which makes for good insulation. White oak bark is soft and flaky, whereas black and chestnut oak bark is hard and firm. The bark of scarlet oak is comparatively smooth, and, although equal in thickness to that of more resistant species, apparently is a better conductor of heat (fig. 50).

In addition to growth rate, form, and value of the wood, the relative resistance to basal injury should at present be considered in judging the desirability of a species for timber production in the southern Appalachian Mountains.

R. M. NELSON, *Bureau of Plant Industry*, and
I. H. SIMS, *Forest Service*.

FLY Trapping Aids in Combating Screwworms of Livestock The pernicious activity of the screwworm is one of the most serious problems with which the stockmen of the Southwest have to deal. The losses resulting from the attack of this fly have been estimated at from $4,000,000 to $10,000,000 annually. Although its depredations are normally confined to Texas, Arizona, New Mexico, and California, there are occasional outbreaks elsewhere in the southern part of the United States. For instance, during the summer and fall of 1933 an unusual set of conditions gave rise to a serious outbreak, with heavy losses, in northern Florida, southern Georgia, Alabama, and Mississippi. In the territory where this pest occurs all kinds and classes of livestock are attacked, not infrequently deer and other wild life are affected, and even man may fall a victim of its ravages.

The screwworm is the larval or maggot stage of a common species of blowfly, which is bluish green and has a reddish-yellow head and three dark stripes down its back between the wings. The insect likes warm weather and is unable to overwinter in this country except in the extreme southern parts. Screwworms breed in tremendous numbers in carcasses of animals soon after death. Development is very rapid, especially in warm weather, when a generation of flies may be produced in less than a week from the time the eggs are laid. The fly may live many days, and the female may deposit 10 or 12 batches of eggs during its life. When the flies become abundant they turn their attention to living animals. They lay their eggs on blood spots where ticks are crushed, on newly born young, and on wounds of all sorts. The young maggots penetrate the tissue, and soon serious damage is done, which often results in the death of the animal attacked.

How the Trap is Made and Used

In an effort to find means of reducing the heavy losses, many different lines of attack have been studied by the Bureau of Entomology. One of these is the development and use of traps designed to capture and destroy the flies.

Of all the devices thus far tested the cone-type trap has been found most suitable for general use. This trap is about 18 inches in diameter and 24 inches high and is made of screen wire on a metal or wooden frame. For use on the range it is provided with legs about 4½ inches high, which are attached to a rough platform nailed in a tree (fig. 51), where the trap will not be disturbed.

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Beneath the trap is placed a bait pan about 14 inches in diameter containing about 2 pounds of meat, usually from cull sheep or goats. The meat is immersed in water (about 2 gallons) to prevent drying, and to each gallon of water 1 teaspoonful of 40 percent nicotine sulphate is added to prevent maggots from developing in the bait. The addition to the water of 1 percent (by weight) of sodium sulphide powder increases the attractiveness of the bait and makes it last longer.

The number of traps that can be used economically on a ranch, their location, and the frequency of renewing baits and emptying the traps are all important considerations, the correct determination of which involves extensive and long-continued experiments. Much light has been shed on these questions by experiments carried out in western Texas during the past 4 years. These tests were conducted on a typical ranch area of about 160,000 acres, and a similar area was used in checking the results. From 1 to 4 traps were used per section. The larger number captured by far the most flies per section. Theoretically, at least, this gives greater protection to livestock.

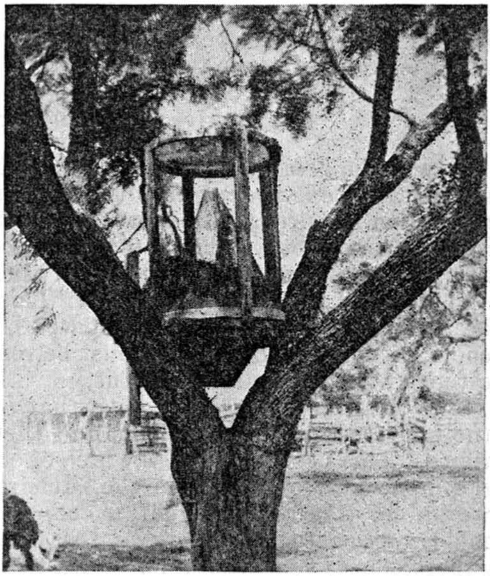

FIGURE 51.—Trap designed to capture the screwworm fly on ranges.

It has been shown that the type of place chosen for the traps is of great importance in the capture of flies. The largest catches of the screwworm fly were made in traps exposed to the sun, protected from direct wind, and surrounded by timber and undergrowth of medium density.

During the summer of 1932, 8,337 gallons of flies were captured in the trapped area in Texas. A large percentage of these were screwworms.

Benefits Obtained by Trapping Flies

It has been extremely difficult to determine accurately how much benefit may be expected from the operation of flytraps. In the summer of 1932 the trapped area showed a 3.4 percent screwworm infestation in all classes of livestock against a 5.9 percent infestation in the nontrapped area. There was also a 58 percent reduction in the number of flies. The reduction in the number of cases does not, however, indicate all the benefits, as the severity of the cases and the number of reinfestations appear to have been lessened, though these points were not accurately determined. Additional benefits came from the destruction of other kinds of flies, such as flesh flies and blue-bottle flies, that annoy in the household and contaminate carcasses of animals that have been recently butchered.

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It should be borne in mind that fly trapping is considered only as a supplemental measure in combating the screwworm. Fly breeding must be cut down as far as possible by prompt burning of carcasses, and conditions favorable to screwworm attack must be reduced by arrangements that will provide for the birth of young and such operations as dehorning, branding, etc., out of fly season, and by preventing injuries to the animals. Regardless of the efforts made to find and destroy all dead animals, it is utterly impossible on the vast range areas, often densely covered with brush, to accomplish this objective. Experiments carried out a number of years ago showed that the screwworm fly is capable of traveling considerable distances. For instance, marked flies have been recaptured 15.1 miles from the point of their release. Undoubtedly they go much farther than this. The operation of traps, therefore, serves a useful purpose in picking up the flies that breed in carrion overlooked in the clean-up work, and also those that migrate from adjacent territory.

Cooperative Trapping Increases Benefits

One of the greatest difficulties encountered in fly trapping is that of giving the traps proper attention. It is obviously poor business for ranchmen to purchase traps at $2.50 to $3 each and not to keep them in operation; yet this has often been done. The traps will not catch flies if they are not properly baited and emptied at regular intervals and repaired whenever necessary. This means that every trap must be rebaited every 10 days in hot weather and every 20 to 30 days in cooler weather, and the flies must be removed about every 30 days or oftener when they are abundant.

The usual experience has been that farmers and ranchmen neglect the traps during busy periods, and these are often the most critical times. This has suggested the idea of cooperative fly trapping. Such a scheme has been tried in the Menard, Tex., area and has proved workable. The county agent, in cooperation with the Bureau of Entomology, initiated the work and gave it general supervision. Such supervision is very desirable. With the pooled resources of the stockmen a reliable man is hired to care for the traps either at the rate of about 50 cents per trap per month or on a flat-wage basis. The larger the territory covered in the trapping operations, the greater are the benefits. It is believed that the extensive use of this method of screwworm control will be fully justified by the resulting reduction of losses caused by this pest.

F. C. Bishopp, *Bureau of Entomology.*

FOALS Deprived of Dam's Colostrum May be Saved by Feeding Horse Serum

The difficulty in raising orphan foals is probably greater than that encountered with the young of any other species of farm animal. How much of this difficulty has been due to the failure of the foal to receive the first milk, called the colostrum, is not known, but horsemen have come to recognize the urgency of having the foal receive colostrum from its dam as soon as possible after the new-born animal is able to stand on its feet.

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There is a belief, common among horsemen, that colostrum is important chiefly as a laxative to facilitate the early passage of the meconium from the intestinal tract of the foal. It has been the custom, therefore, when for any reason colostrum is not available for the new-born foal, to administer a laxative to facilitate this elimination. Another role sometimes attributed to colostrum is its high concentration of nutritive elements in a form easily digested by the young animal.

Protective Function of Colostrum

The results of scientific research on the functions of colostrum have indicated also that, in at least some species, colostrum serves to immunize the new-born animal passively against bacteria for which its dam has already acquired immunity. Although in some species the immune substances present in the blood of the maternal animal are transmitted to the fetus through the placental circulation, as in man and the rodents, in other species, including the sheep, cow, goat, and horse, the placenta is of such structure that such transmission does not normally occur. In these last-named species, the blood of the young is lacking in the antibodies, or protective substances, which are present in the blood of the dam. There is, however, in the colostrum a concentration of antibodies several times as great as that in the blood of the same animal. There is further experimental evidence that in each of these types, the suckling young absorbs these substances from the colostrum it ingests during only the first 24 to 48 hours of its life. After this period no such absorption is found.

In 1922, Theobald Smith, formerly of the Department of Agriculture, and Ralph Little published the results of the first of a series of experiments which demonstrated conclusively the essential role of colostrum in the survival of new-born calves. They found that from 75 to 80 percent of calves which did not receive colostrum died of a generalized *Bacillus coli* infection, whereas control calves which received colostrum all survived. Since the organism *B. coli* is nonpathogenic for adult cattle, they concluded that "the function of colostrum is essentially protective against miscellaneous bacteria which are harmless later when the protective functions of the calf have begun to operate." Doctors Smith and Little further showed that calves can efficiently utilize cow serum either fed or injected, as an agent for such immunization, and were successful in using cow serum as a substitute for cow colostrum in rearing young calves.

Experiments with Horse Serum

In an effort to determine whether such findings would apply to equine stock, an experiment was conducted by the Department to determine the effect of substituting horse serum for horse colostrum in the raising of foals when their value justifies such a procedure. The technic for obtaining serum suitable for injection requires greater care than that for material to be fed. Moreover, the technic for injection requires more skill than for feeding. Consequently, in view of the practical nature of this experiment the serum was administered to the animals principally by feeding. A group of 13 new-born foals at the United States Animal Husbandry Farm, Beltsville, Md., was used. All were kept under the same conditions and surroundings and were handled similarly and fed similarly except in respect to the diet they received. The first lot, consisting of 3 foals, received neither colostrum nor serum, but only a milk preparation composed principally of dried cow's milk, sugar, and water. Although the meconium was passed within 8 hours after delivery, and there were no evidences of constipation, each of these animals showed definite evidences of illness about 40 hours after birth. Two of them lived only 42 and 57 hours, respectively, both dying of septicemia produced by the *Shigella equirulis* organism. The third foal lived 12 days and died of a general septicemia attributed to a strain of *Salmonella paratyphi*, although the *Shigella equirulis* organism was also present in the tissues. Both of these organisms are commonly associated with the so-called "joint and navel ill" in foals.

Shigella equirulis is widespread among horses and in barns but is nonpathogenic to the adult horse. It would appear that the adult horse has built up a resistance toward this and other commonly prevalent organisms, which is transmitted under normal conditions to the foal through the colostrum. But a foal which fails to receive passive immunization through the colostrum or some other source appears unable to combat an infection, when once invaded by organisms.

Another lot of 3 foals was fed mare's colostrum during the first 12 hours after delivery, and mare's milk thereafter. These foals grew normally and had no symptoms of ill health.

Serum Fed Fresh and Dried

The remaining 7 foals received a suitable quantity of horse serum in addition to a milk preparation of the same composition as that fed to the first lot of foals. The serum was fed in two different forms, fresh and dried, both apparently being equally efficacious. The serum was obtained from healthy mature horses by drawing 2 or 3 liters (about 2 or 3 quarts) of blood at a time from the jugular vein. After the defibrinated blood had stood for from 6 to 8 hours, the clear serum was siphoned off the cells. This fresh serum was fed within 5 or 6 days after the blood was drawn.

About 4 liters (about 4 quarts) of serum obtained as described were dried in a partial vacuum at room temperature. This dried serum was fed within 3 months after its preparation. When desired for feeding it was dissolved in sufficient water to make it up to its original volume; that is, about 8.5 parts of dried powder were mixed with 91.5 parts of water. This fluid was then incorporated in the milk mixture and fed to foals. Since in this study the foals were receiving a mixture composed principally of dried milk, sugar, and water, the serum, whether it was fresh or dried and redissolved, was used to replace an equal volume of water in the milk mixture.

Six of the last lot of seven foals were each fed three fourths of a liter (about three fourths of a quart) of serum per 100 pounds of body weight between 6 and 18 hours after birth. Three of the animals received fresh serum, and three redissolved dried serum. In every instance the foal grew as a healthy, thrifty animal, with no symptoms of ill health. In the case of the seventh foal, however, the administration of serum was delayed until from 40 to 48 hours after birth. This foal was definitely ill before serum feeding was begun. No obvious effect was obtained from the feeding of 1 liter (about 1 quart) of fresh serum at this time. Injections of serum on the fourth and fifth days after birth were apparently responsible for a reduction in the swelling of the joints and an improvement in the diarrhea.

Mention has previously been made of the ability of several species of new-born animals, including foals, to absorb protective substances from colostrum fed within the first 48 hours after birth. Experimental evidence on the relation between degree of protection achieved and the age of young animals is limited. Yet, logically, the earlier a foal receives the protective substances in the colostrum or serum, the smaller the quantities required for efficient protection. The small number of animals used thus far in experimental work on this subject and the conditions of exposure do not warrant broad conclusions or recommendations involving the use of horse serum in raising colts. Besides, the limited facilities and the cost of obtaining adequate quantities of the serum will scarcely justify its present use for orphan foals of ordinary grade. However, in the case of valuable foals for which no colostrum is available, the information here presented suggests a promising means of protection against the ills of early life. The services and advice of a qualified veterinarian are advisable in obtaining and administering the serum.

I. P. EARLE and J. A. GAMBLE,
Bureau of Animal Industry.

FOREST Fires in Florida Are Fought with Water and Motorized Equipment The national forests of Florida are highly inflammable because of the character of the ground cover and the common occurrence of relatively high temperatures, low humidity, and strong winds. These last three factors, and the sandy soil tend to diminish the effect of a heavy annual rainfall. Forest fires once started spread with great rapidity. They are usually driven forward by strong winds and make a "run" in a narrow strip a mile or more in length, often developing two or more "heads" or "leads."

The forests are situated in an area of virtually level terrain, and it is possible to drive an automobile or truck through the woods in most places. Longleaf pine is the predominating timber species, with slash pine found on the moist or "pond" sites, which afford the forest protection from repeated fires. In these generally open stands of pine the ground cover consists of grass, scrubby oaks, and an accumulation of oak leaves and pine needles of varying density, depending on the frequency with which a given area has been burned over.

Fires for the most part are confined to small areas because of the prompt discovery made possible by strategically located look-out towers from 80 to 100 feet high. In these towers look-out men, the eyes of the fire-protective organization, are constantly vigilant during periods of probable fire occurrence. They discover the first wisp of smoke and telephone the alarm. Fire fighters and equipment are immediately dispatched to the scene of the fire.

To meet the demand for rapid action in suppressing fires, the forests are gradually being gridironed with roads, motorways, and firebreaks. In spite of these improvements, however, a fire, given favorable conditions, will make a terrific run and jump the firebreaks. In this case the "head" must be stopped at all costs. Once the "head" is stopped, the flanks are relatively easy to extinguish.

During the last decade the use of water and motorized equipment has come to be recognized as an invaluable aid in fire suppression.

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During the last decade the use of water and motorized equipment has come to be recognized as an invaluable aid in fire suppression.

Forest officers of the Choctawhatchee, Ocala, and Osceola National Forests in Florida, have developed fire trucks equipped with 250- to 300-gallon water tanks, pumps, and hose (fig. 52). The pumps are so operated by the truck motor that water is pumped while the truck is either in motion or stationary. Each truck carries 50 feet of rubber garden hose with small nozzle. The pumps can be used to supply the hose or to fill the water tank from a nearby creek or pond by means of a suction hose. The trucks are equipped with heavy bumpers and heavy-duty tires, and light armor protects those parts most liable to injury from saplings, stumps, and snags. Two or three men are assigned to each truck. A truck driver operates the pump while he drives the truck; a nozzle man walks or trots ahead of the truck and directs the stream of water directly on the flames (at times this man literally wades in fire), and a nozzle-man's helper keeps the hose free from entanglements.

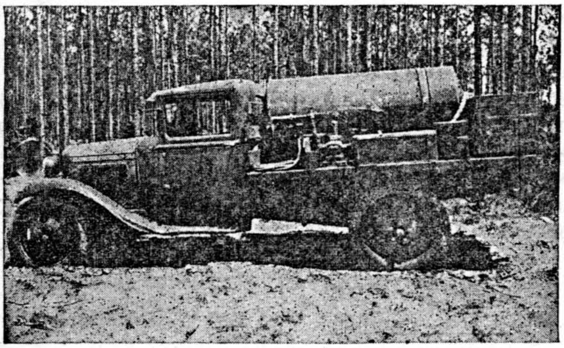

FIGURE 52.—One and a half ton truck equipped with 240-gallon water tank, plunger-type force pump operated from power take-off to truck transmission, six back-pack spray cans, drinking water, and 12-man tool outfit.

With this equipment it has proved possible to break the "head" of a fire by the application of water, which cools down the fire sufficiently to allow fire fighters to attack it directly, or build a fire line close to the flames. Water is not depended upon for 100-percent extinguishing, but is used only as an aid to manpower, as the amount of water available is limited to the capacity of the tank on the truck. Every gallon must be utilized to the maximum, and great responsibility rests on the nozzle man, who must be well trained and experienced.

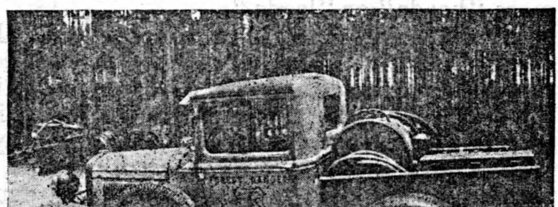

FIGURE 53.—One half ton truck equipped with 50- to 60-gallon water drum, a hand force pump, 5-gallon back-pack pump, tool box, and miscellaneous tools.

Once the head of the fire is checked, the trucks turn to the flanks. Here, followed closely by fire fighters equipped with rakes and special tools, the truck crew cools off the hot line, so that the fire fighters can attack the fire directly. The easily accessible terrain permits the truck to follow the burning fire line through the forest. Small scrubby oak and small pine saplings are pushed over by the heavy bumper as the truck plows its way through the brush. There is much dodging and maneuvering of stumps and logs, but truck crews know their job.

Occasionally forest officers are required to combat a fire with a "head" so wide and traveling so rapidly that a direct attack is impossible. In such cases the fire fighters choose as a defensive line a road, motorway, or previously constructed firebreak from which to back-fire. In back-firing care must be exercised to prevent the back-fire from getting out of control. Here again the tank truck plays an important role by aiding in preventing the back-fire from spreading in the wrong direction. The back-fire must burn against the wind into the oncoming conflagration. Thus one fights fire with fire.

Under some conditions previously prepared defensive lines are not available and light tractors with disk plows or light graders are rushed to the scene on a large motor truck and trailer. This equipment is unloaded, and a fire line is plowed in advance of the spreading flames, and the back-fire is started. The tractor and plow are often capable of suppressing the flank of a fire by plowing one furrow very close to the burning edge of the fire.

In all phases of fire suppression in the Florida national forests motorized equipment is playing an important part (fig. 53). It is especially adaptable to Florida conditions and great possibilities exist for the extension and development of its use.

H. O. STABLER. *Forest Service.*

FORESTS Helped by Thinnings Made under "Free Use" Provision Free use of dead, down, and insect-infested timber and material from thinnings on the national forests is granted to settlers, miners, and other residents for firewood, fencing, and domestic purposes, by regulations of the Department of Agriculture. Large numbers of farmers located within the Black Hills and

FIGURE 54.—Men of the Civilian Conservation Corps thinning a stand of ponderosa pine.

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FIGURE 54.—Men of the Civilian Conservation Corps thinning a stand of ponderosa pine.

Harney National Forests, S.Dak., and the surrounding territory, avail themselves of this privilege annually. On account of the drought and grasshopper plagues that have prevailed in western South Dakota, in recent years as well as the general agricultural depression, the number of people who have applied to the Forest Service for free-use material has more than doubled. A total of 5,200,000 board feet of free-use wood products was removed from these two forests during 1932 by 1,709 people. The removal of this kind of material is an improvement and protection to the forest, and takes care of the needs of local farmers and miners, so that a twofold purpose is served.


FIGURE 55.—Overcrowded stand of ponderosa pine pole-size trees which it would be advantageous to thin.

A practically treeless farming country surrounds the Black Hills section, and in addition to the need for firewood, there is also a demand on the national forests for fence posts, corral poles, shed rafters, etc. For some of these purposes, material from small, green trees can be used. In these forests are thousands of acres of overcrowded pole-size stands of ponderosa pine supporting from 2,500 to 3,000 trees or more to the acre. The trees are growing so close together, and the competition for light and moisture is so intense, that the growth of the entire stand is retarded. Furthermore, these dense stands of saplings and poles are a tremendous fire hazard to the national-forest property, since fires in such stands quickly jump into crown fires and are hard to combat.

During the summer of 1933, the labor of the young men in the Civilian Conservation Corps engaged in general forest-improvement work was directed toward making needed thinnings, and much was accomplished. By the end of August they had completed thinnings on a total of 5,640 acres (fig. 54). Arrangements were made between the forest supervisors and the State relief director for the shipment of 500 cars of firewood, taken from areas nearest to the railroad, for use in relief work during the succeeding winter. The State relief committee assumed responsibility for hauling the material to the railroad and the men of the Civilian Conservation Corps loaded it.

In addition to the work of the Civilian Conservation Corps, the wood products given to farmers under free-use permit has increased materially the acreage thinned. Strips for thinnings were laid out and labeled conspicuously with the permittees' names and addresses. This inspired each permittee to take a personal pride in doing good work on his strip. The demand from farmers for products under the system of free use is increasing steadily, since the work can be done during seasons of the year when farm work is slack.

A forest officer marks with a bark blaze or spot of paint the trees to be left, from 500 to 600 to the acre. These trees are the best in the stand and are selected for their form, thrift, proper spacing, and the possibilities they have for making fast growth after being released from competition (fig. 55).

The material cut in making thinnings is given to the permittees free of charge in exchange for cutting it. Both parties to the transaction benefit—the permittees obtain material useful for farm purposes, and the forest gets a much-needed thinning, which results in increased growth of the remaining trees, reduces the fire hazard, and beautifies the locality.

Dense stands of pole-size trees constitute a thinning problem everywhere, and it is probable that the system started on the Black Hills national forests, or a similar one, may be worked out for many agricultural communities adjacent to other national forests.

THEODORE KREUGER, *Forest Service*

FOREST Management in the Northwest Making Progress Steady progress in sustained-yield management on the national forests of Oregon and Washington is shown in the completion of detailed management plans for important forest units and the starting of timber-cutting operations on sales made under these plans. The area contains 22,972,386 acres of national-forest land, of which 17,580,000 acres is potential commercial-forest land. Eleven approved plans now cover a total area of 2,250,575 acres, and two completed plans not formally approved cover 997,169 additional acres. Approved and completed plans together comprise 14.1 percent of the total. Planning progress during recent years has been at the average rate of about 277,200 acres a year.

Sales of timber have been made on 8 of the 11 working circles covered by approved management plans, in accordance with the stipulated policy, including regulated cutting.

In the heavy Douglas fir forests of western Oregon and Washington the ideal unit of management is a large watershed of from 75,000 to 100,000 acres of productive forest land containing from 3,000,000,000 to 4,000,000,000 board feet of timber. In this area the entire production of the working circle can go into the general lumber market, and the plan can be based upon the maintenance of a single logging operation. The plan provides for the regulation and limitation of the cut according to an assumed rotation or term of years within which the forest area within the circle will be cut over. This period may vary from 70 to 110 years depending upon the character of the stand, site quality, rate of growth of the timber, and the product which it is desired to grow. Pulp timber, for example, can be grown in a much shorter time than saw timber. The fundamental principle of each plan

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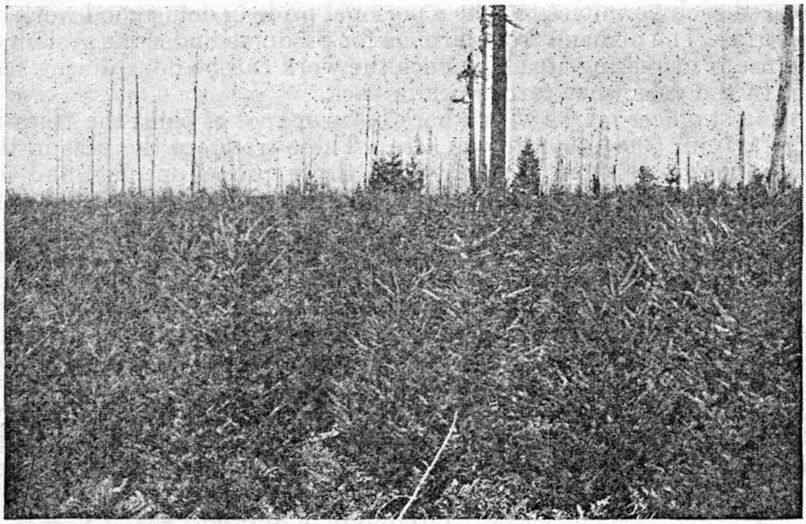

FIGURE 56.—Young Douglas fir which has come in on logged-off land as the result of protection.

practiced in the Douglas fir type with provision made for natural reproduction from seed trees, left sometimes singly but more often in strips,

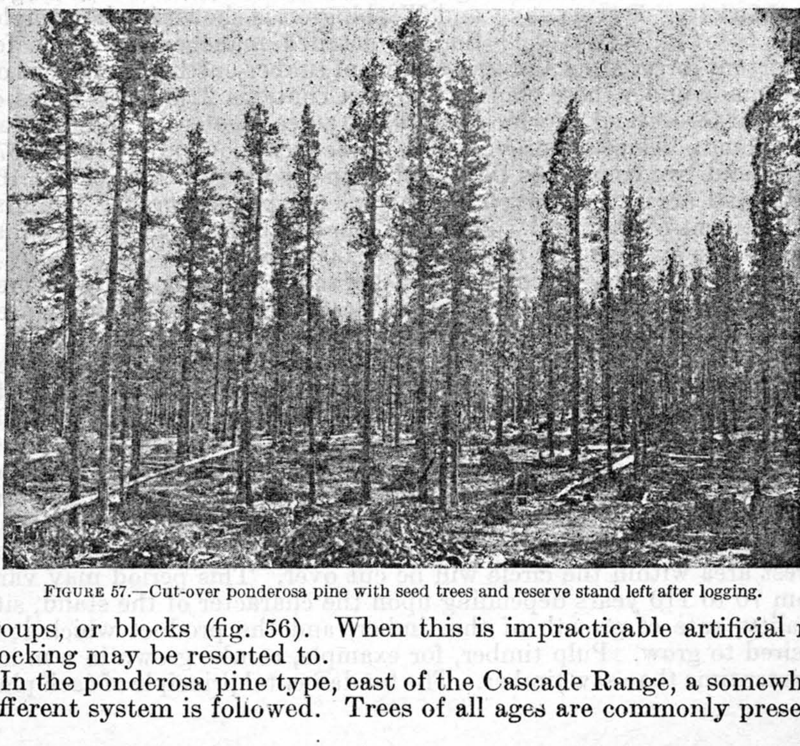

FIGURE 57.—Cut-over ponderosa pine with seed trees and reserve stand left after logging.

groups, or blocks (fig. 56). When this is impracticable artificial restocking may be resorted to.

In the ponderosa pine type, east of the Cascade Range, a somewhat different system is followed. Trees of all ages are commonly present in the forest, and it is feasible to reserve the younger, thriftier trees as the nucleus for a new crop to be cut in about 60 years. The first cutting removes about 80 percent by volume of the total stand or a little more than half of the trees. Protection of advance reproduction during logging is an important feature, since this young growth must be depended upon to a large extent for the third crop on which cutting will begin about 120 years after the first cutting (fig. 57).

Owing to the lighter stands per acre and slow growth of the timber, the maintenance of even a fair-sized logging operation requires a very large working circle. One such circle within which the permissible cut during the first 60-year cycle has been placed at 60,000,000 feet annually, includes a productive area of 429,239 acres.

The aim of forest management in all types is to keep forest land productive and to so regulate the rate of cutting that the communities dependent on established lumber-manufacturing plants may be assured of a continuous crop of raw material.

FRED AMES, *Forest Service.*

FUR-BEARING Animals May Be Increased by Wise Management and Protection The animals of the United States which since long before the advent of the white man have provided the finest furs have been forest dwellers. The marten, the fisher, the otter, the mink, the fox, and the beaver—all now relatively few in numbers—and some animals locally extinct over wide areas formerly inhabited the forests in countless thousands.

Their near-extinction cannot be accounted for entirely by extension of human settlement. Thousands of acres of forested land, especially west of the Great Plains, are sparsely settled. Uncontrolled trapping for market, the "killing of the goose that laid the golden egg" is largely responsible for their disappearance. There is yet time, however, to save the remnant of most of the species and to increase them to productive numbers in years to come. In the western part of the United States most of the rough and relatively inaccessible mountainous areas are in the national forests. Such areas are the natural home of most of our best fur-bearers. This country is not adapted to agricultural settlement, and no doubt will be kept in forests for all time. Therefore, if an adequate basic breeding stock can be brought back by protection and thereafter only a reasonable natural increase taken annually, the present scarcity of fur-bearing animals can be overcome.

Take, for instance, the situation in Colorado. There are 14,751,660 acres of rough mountainous territory in the 14 national forests located within the boundaries of the State. Estimates made annually for years, by forest rangers who are out in the forest the year around, indicated in 1931 the following numbers of various fur-bearers: Weasel, 42,000; beaver, 40,000; muskrat, 22,000; marten, 7,500; mink, 7,000; skunk, 4,700; badger, 4,100; and fox, 3,400.

Where are the fisher and the otter, both denizens of old of the dense forests of this State? Where are the thousands of martens, minks, and foxes that formerly inhabited this territory? Where are the hundreds of thousands of weasels whose winter fur is that of the ermine? Gone or greatly reduced in numbers, because of no adequate regulation of trapping for market or control of the summer vacationist with the in the forest, and it is feasible to reserve the younger, thriftier trees as the nucleus for a new crop to be cut in about 60 years. The first cutting removes about 80 percent by volume of the total stand or a little more than half of the trees. Protection of advance reproduction during logging is an important feature, since this young growth must be depended upon to a large extent for the third crop on which cutting will begin about 120 years after the first cutting (fig. 57).

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Laws Inadequate to Protect Fur-Bearers

The control of hunting and trapping of fur-bearers even in the national forests is under the authority of the State. Most States of the West have inadequate laws for the protection of fur-bearers. Colorado has practically none. The only fur animal receiving protection under the State law in Colorado is the beaver. This easily trapped animal and valuable irrigation-water conservator has responded to protection. This indicates that greater numbers of other animals not so easily trapped might be expected if given reasonable protection. Practically all the beavers in Colorado are in the national forests, where there is natural territory for at least twice the present number.

The essentials of a law protecting a basic supply of fur-bearers and providing for the utilization of the surplus annually, are: (1) Total protection except when the fur is prime. This will automatically protect animals during the time of breeding and raising young. (2) Limitation of kill, annually by individuals and according to territory. (3) Allocation of territory to individual trappers.

Fur farming may well supplement, though it does not promise to supplant the natural production of fur. Success in fur farming has thus far been limited to a few species. For some of these the profits have resulted to some extent from the demand for breeding animals. As in other lines of breeding, such stock commands higher prices than would the skins. The Bureau of Biological Survey has studied the many phases of fur farming, but up to the present its efforts with native wild animals have been primarily concerned with foxes and minks, the species best adapted to production in captivity. Through control of mating, however, the fur farmer has produced several popular color phases, and by proper selection he can undoubtedly produce animals of superior fur quality. These farm-raised animals will naturally be few as compared with the potential abundance in native habitat. Fur farming will not soon solve the problem of pelt production as regards the marten, the fisher, and the otter, the raising of which has thus far proved more difficult than that of foxes and minks. Wise management to maintain adequate breeding stock for reproduction in its natural state will continue to be necessary.

L. H. Douglas, *Forest Service.*

GAME and Other Wild Species Suffer Heavy Losses from Disease

Continuous observations over a period of several years have afforded many opportunities for recognizing that some of the more serious and extensive losses of wild life, though attributable to natural causes, are probably preventable. The old ideas that wild subjects in their native environment are always healthy, and that when death overtakes them it is due either to old age, to attacks by predatory species, or pursuit by hunters and trappers, have been proved erroneous. The fact that fur-bearing animals and game birds frequently develop to a larger size when propagated under the control of man, free from disease and parasites, gives small-caliber rifle or pistol who shoots at any unusual or strange animal. Many animals whose fur would be valuable in winter are thus killed in summer, when their pelts are worthless on the fur market.

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L. H. Douglas, *Forest Service.*

GAME and Other Wild Species Suffer Heavy Losses from Disease

Continuous observations over a period of several years have afforded many opportunities for recognizing that some of the more serious and extensive losses of wild life, though attributable to natural causes, are probably preventable. The old ideas that wild subjects in their native environment are always healthy, and that when death overtakes them it is due either to old age, to attacks by predatory species, or pursuit by hunters and trappers, have been proved erroneous. The fact that fur-bearing animals and game birds frequently develop to a larger size when propagated under the control of man, free from disease and parasites, gives evidence that when forced to seek their own livelihood and protection they must endure many rigors, some of which are fatal and others which merely stunt their growth. This dwarfing is especially noticeable, however, in overpopulated environments, and is found to be due to insufficient food, disease, and parasitism.

Of greater importance are the extensive losses occasioned by epizootics over wide areas and affecting great numbers of individuals. Perhaps the best-known example of this is the "western duck sickness", properly termed botulism, which is so highly destructive to waterfowl and shore birds frequenting certain alkaline lakes in the West. These losses are greatest late in summer and in the fall, when the combined factors of abundance of decaying organic matter and shallow alkaline water warmed by long exposure to the sun, form the necessary conditions for rapid growth of the causative organism, *Clostridium botulinum*, type C. A potent toxin is produced by this bacterium, and when birds in these areas ingest this with their food, death ensues quickly. More than 8,000 birds have been counted per mile of shore line, where they had died or had been carried by wave action. Gulls appear to be relatively resistant to this toxin, but most species of waterfowl and shore birds are found to be susceptible and to succumb if they take a sufficient quantity of the poison.

Pollution of the waters by industrial waste and oil likewise accounts for many waterfowl losses. The oil acts only as a physical handicap to the birds, whose feathers become saturated, and their death results from cold, starvation, or drowning. Other substances that pollute the waters, such as lead picked up as shot pellets, and phosphorus, dropped in the waters over which explosives are sometimes fired, kill because of their actual toxicity. Unlike botulism, the extensive losses from which are confined chiefly to the western alkaline lakes, the losses caused by water pollution are observable throughout the United States in all types of fresh water.

Cyclic Disappearance of Species

It has frequently been noted that great numbers of the more important species of upland game birds and fur-bearing animals disappear at more or less regular intervals. During the past few years the seriousness of these periodic disappearances has caused increasing concern among conservation officials and other wild-life administrators. Since it is not feasible to propagate many of the wild forms under controlled conditions, increased efforts are being made to combat the waste occurring in these cycles in some of which the populations are almost wiped out.

Typical areas that have suitable cover and support a variety of wild species have been surveyed by cooperators of the Bureau of Biological Survey, and plans are being developed for making a careful study of the resident and other fauna over a succession of years. Observers will note the cause or causes of the losses over at least one complete cycle, from the period of abundance through that of scarcity. The most spectacular declines in wild-life population as a rule follow periods of greatest abundance, and it is demonstrable that in dense populations of susceptible subjects, virulent diseases have the opportunity to cause the greatest destruction and waste, but that they are for this reason self-limiting.

In areas now being examined by the Biological Survey and its cooperators, tularemia has been encountered not only in rabbits, but also in a wide range of other species and in many widely separated localities. Insects that transmit this and other diseases are abundant. During the year 1933 the Bureau and its cooperators demonstrated that ruffed grouse and sharp-tailed grouse are susceptible to tularemia. It is not assumed, however, that this disease alone is responsible for the present serious losses among game.

Investigations on diseases of wild life are being conducted in greatest detail in Minnesota through the cooperation of the State university with the Bureau of Biological Survey. Special efforts also are being made to correlate the observations with conditions existing in other parts of the United States and in Canada. It is expected that the information to be derived from the studies will enable wild-life administrators to institute measures to curtail the extensive but probably preventable waste in wild-life resources from natural causes.

J. E. SHILLINGER, *Bureau of Biological Survey.*

GAME Preserve on the Wichita National Forest, a Museum of Natural History In 1901, when the Apache, Comanche, and Kiowa Reservations in the old Indian Territory in southwestern Oklahoma were opened to settlement, 61,480 acres of semimountainous lands were retained as the Wichita Forest Reserve.

The administration of the area was transferred to the Department of Agriculture in 1905, and in the same year it was further designated a Federal game preserve. Since March 1907 it has been known as the Wichita National Forest and Game Preserve. Herds of big game have been developed here under the United States Forest Service game management method (fig. 58).

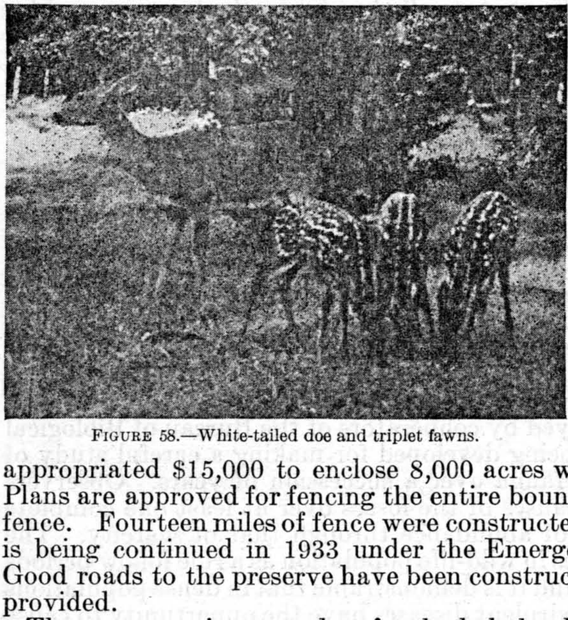

FIGURE 58.—White-tailed doe and triplet fawns.

In 1906 hunting and trapping regulations were issued by the Secretary of Agriculture, and Congress appropriated $15,000 to enclose 8,000 acres with buffalo-proof fence. Plans are approved for fencing the entire boundary with a game-proof fence. Fourteen miles of fence were constructed in 1931, and the work is being continued in 1933 under the Emergency Conservation Act. Good roads to the preserve have been constructed and camping places provided.

The area consists mostly of oak-clad, boulder-strewn hills, interspersed with valleys, parks, and streams skirted with pleasant groves. The average elevation is about 1,700 feet above sea level.

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Post, black jack, and red oaks make up 90 percent of the woody cover; elm, ash, native walnut, pecan, mulberry, persimmon, hackberry, and cedar about 10 percent. The native species furnish important cover and food for wild life and add much to the natural game values. Plantations of cedar, Osage-orange, black walnut, and black and honey locusts have been established, and further planting is

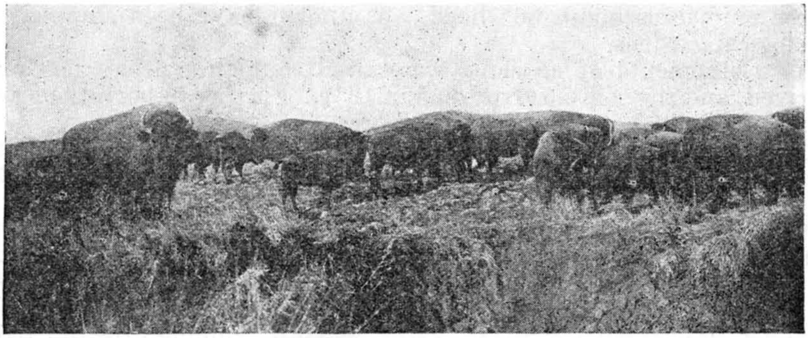

FIGURE 59.—Some members of the breeding herd of buffaloes on the Wichita National Forest and Game Preserve.

planned. True buffalo grass (*Bulbilis dactyloides*) and its near relative, grama grass (*Bouteloua* sp.) are important constituents of the herbaceous vegetation.

White-tailed deer was the only big-game species remaining on the land at the time the forest was established. This species now numbers about 400.

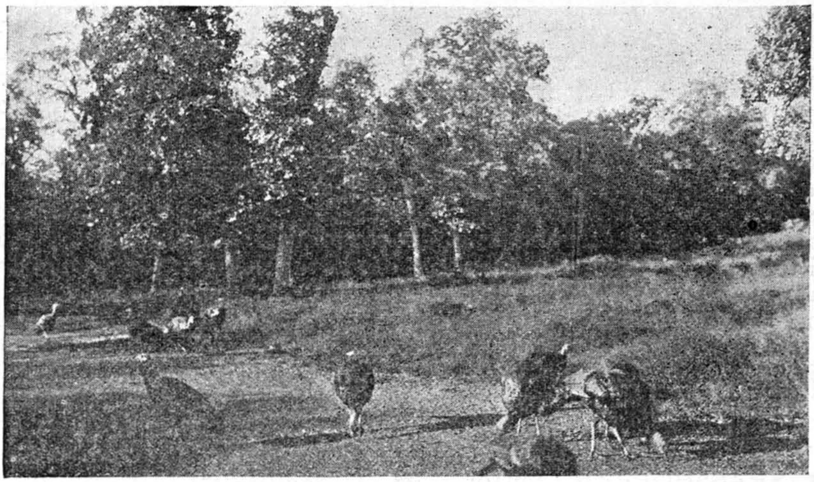

FIGURE 60.—Wild turkeys.

Fifteen buffaloes (9 cows and 6 bulls) representing four distinct strains of blood, were received from the New York Zoological Gardens through the special interest of W. T. Hornaday and the American Bison Society, in October 1907. After some early losses from tick fever, the herd prospered and now numbers some 282 animals (fig. 59). A considerable number has been sent out as planting or exhibition stock for parks and zoos. A bull known as "General Lawton", the last of the original herd, succumbed in 1930 at the mature age of 25 years. One cow attained the age of 29 years. Another of the original herd gave birth to a calf at 24 years. Inferior animals have been eliminated with a resultant high type of herd.

Twenty-one elk were imported between 1908 and 1912, 20 of which were from the vicinity of Yellowstone Park. The present estimate of these animals is about 365 head. A number have been shipped to zoological gardens.

Two shipments of antelope were tried, but the species has not thrived, and the sole survivor died in 1931. Further importations are contemplated.

In 1912–13, 24 wild turkeys from Missouri and Oklahoma points were planted. It is estimated that the forest now harbors at least 700 of these birds (fig. 60).

Of special interest was the introduction in August 1927 of 26 old-type longhorn cattle under a special act and appropriation of Congress. The purpose is to save from extinction this unique type of cattle so important in the early history and development of the range country. This herd has thrived and now numbers some 96 head (fig. 61).

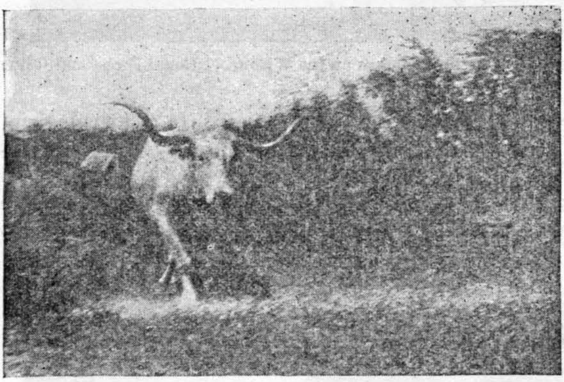

FIGURE 61.—An old-type longhorn steer.

In the management of the Wichita National Forest and Game Preserve the plan is to restore, control, and protect species formerly indigenous to that locality and keep them in their natural environment as much as practicable; to provide a reservoir of planting stock for States, parks, and other agencies interested in wild life; to conduct, with the cooperation of the Bureau of Biological Survey, natural-history and biological studies which will be generally useful in game studies and management; and to provide a large outdoor museum in natural history for the thousands of people from many sections of the country who yearly visit and enjoy the wild life, the natural beauties, and the historic interest of the area.

JOHN H. HATTON, *Forest Service*.

GRASSHOPPER Control More Effective When Undertaken at Beginning of Outbreak Grasshopper infestations of greater or less extent and severity occur somewhere in the United States nearly every year. Almost invariably such infestations follow the occurrence of 2 or 3 dry seasons. Occasionally when such conditions exist over an extensive area and for some reason artificial control is not obtained, a very serious and widespread outbreak results.

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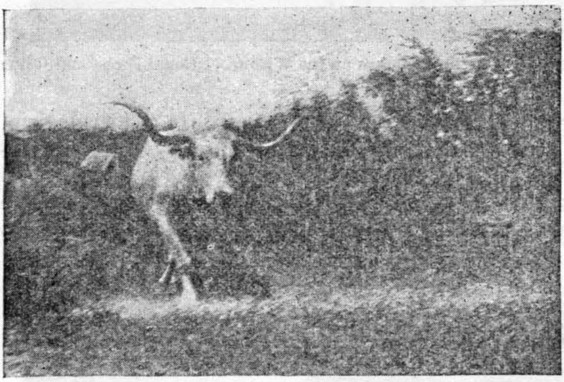

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Extent of the Present Outbreak

Such was the beginning of one of the most destructive grasshopper outbreaks of record in this country. In 1930 two species, the differential and the two-striped grasshoppers, were observed to be building up in unusual numbers in the Dakotas, Minnesota, Nebraska, and Iowa. In 1931 this outbreak reached a destructive status, resulting in heavy crop losses over hundreds of square miles of farm country in south-central South Dakota, northeastern Nebraska, northwestern Minnesota, northeastern North Dakota, and northwestern Iowa, and less severe damage in adjoining areas (fig. 62). In 1932 a cool, wet spring,

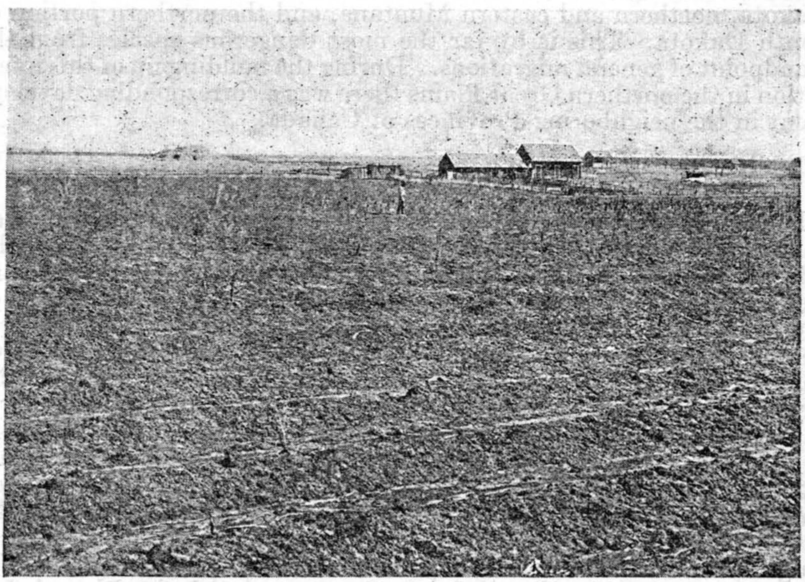

FIGURE 62.—A field of corn in South Dakota destroyed by grasshoppers in 1931. The trees around the buildings at the upper right of the picture were also completely defoliated.

with unusually heavy, driving rains, was followed by a general reduction in the numbers of grasshoppers in Nebraska, Iowa, and South Dakota. The excessive moisture from these rains also produced a very rank growth of native vegetation as well as of cultivated crops, so that such hoppers as survived the unfavorable climatic conditions were furnished ample food for development without any considerable feeding in cultivated areas. Small grains and hay crops remained practically unharmed, and the only damage observed was to corn as a result of the drying up of native vegetation late in the season. In North Dakota and Minnesota, however, conditions were quite different because of the unusually dry spring as contrasted with the abundant rainfall farther south; consequently, for the year 1932 the center of the most destructive infestation shifted to northwestern Minnesota and northeastern North Dakota. At the same time a third species, the clear-winged or warrior grasshopper, increased to outbreak numbers, and a fourth, the lesser migratory grasshopper, began to appear in injurious numbers.

Infestation in 1933

The season of 1933 was characterized by a general and severe infestation over practically the whole of North Dakota, extending southward into central and eastern South Dakota, northeastern Nebraska, and westward over eastern and northeastern Montana, with less severe infestations in Idaho, Wyoming, Minnesota, Wisconsin, and Michigan, and in sections of practically all the other Western States. The lesser migratory grasshopper, either a direct descendant or a close relative of the Rocky Mountain grasshopper of old, which caused so much damage during the early settlement of the Plains country, became abundant over a much larger area and was the most threatening species in North Dakota, northern and eastern Montana, and the northern portion of South Dakota. This is by far the most dangerous species from the standpoint of general migrations. During the building up of this infestation in the northern Great Plains there was a corresponding development in the neighboring Provinces of Canada.

Control Handicapped by Economic Conditions

During the winter of 1930 and the early spring of 1931 attention was called, both through the press and by radio, to the building up of the infestation just described, and appropriate recommendations for control were made. The financial condition of the farmers, as well as of the States and infested counties in the northern Great Plains, prevented them from obtaining funds adequate to finance an effective control campaign. This condition persisted, and early in 1932 the President requested an appropriation of $1,450,000 to aid, by Federal supervision and purchasing of materials, in a general control campaign in this area. This and other efforts to obtain Federal funds for such a campaign failed. The Minnesota State officials, however, carried through the general plan as it applied to that State and, by the use of a State appropriation of $250,000, conducted a successful control campaign. In North Dakota many counties used available funds for control, and considerable good was thus accomplished, although full value was not possible because of lack of complete coordination and unified control effort.

Because of the failure to obtain a Federal appropriation for the control of this outbreak in 1932, no concerted attempt was made to obtain Federal funds directly to finance control work in 1933. However, as the season developed, and hordes of young hoppers began to migrate from their hatching grounds, frantic appeals were made for Federal help. Such attempts to obtain funds from the Reconstruction Finance Corporation, the Federal Emergency Relief Administration, and the Farm Credit Administration, as well as from regular departmental appropriations, revealed the fact that either no funds were available or authority to use available funds for grasshopper control was lacking. The result was a continuation of the campaign by State authorities in Minnesota, effecting a further reduction of the infestation in that State, with little or no loss of crops. In North Dakota 15 or 20 counties attempted control on county bases, and considerable good was done, although owing to the lack of concerted effort on a State-wide basis, with no effort whatever in some counties, there was little improvement in the situation in this State as a whole. In South Dakota no control work was done, while in Nebraska, Colorado, Montana, and

Idaho fairly effective work was done on a county basis, in some cases, as in Nebraska, with the assistance of State funds.

Serious Damage Expected in 1934

From information available in the fall of 1933, destructive grasshopper infestations are to be expected in 1934 in North Dakota and South Dakota, northeastern Nebraska, northern Wisconsin, northern Michigan, northern Wyoming, throughout most of Montana, and in many sections of practically all the Western States. It is both interesting and important to note that in Minnesota, where a State-wide campaign has been effectively carried out for 2 years, the grasshopper population is almost normal, in contrast to the heavy infestation now existing in the surrounding States, where no concerted efforts have been made toward control.

Unless weather conditions unfavorable to grasshoppers should prevail over the extensive area just mentioned, the outlook for destruction by grasshoppers in 1934 is more serious than for any previous year of the present outbreak.

W. H. Larrimer, *Bureau of Entomology.*

GRAZING Loss by Poisonous Plants Reduced on Ranges by Eradication of Plants Obnoxious range plants in the national forests include species poisonous to livestock, plants that cause mechanical injuries, and aggressive plants of little economic value that crowd out valuable vegetation. The seriousness of the poisonous-plant problem is indicated by the fact that on the national forests the annual loss to stockmen from poisonous plants is approximately half a million dollars. In some instances obnoxious species have become established following the destruction of more valuable plants by fires, overgrazing, etc. In such cases the original plant association may often be reestablished through management which will afford adequate protection to the preferred species. In the case of particularly aggressive plants or poisonous plants which cause serious losses of livestock often the only effective solution is to destroy the plants.

The more common means employed to eradicate undesirable plants include grubbing, mowing, and the use of chemicals. Although various chemicals are being used successfully for killing plants on a small scale, their cost is so high and the technic of applying them so imperfect that the Forest Service has not felt justified in undertaking this method of control extensively. The principal method employed to date has been grubbing. The principal group of plants operated on are the larkspurs. These plants are responsible for a larger percentage of losses among cattle than any other class of plants on the national forests. Where they occur concentrated in patches on range of high carrying capacity, their eradication is often justifiable, in view of the fact that a larger acreage of good range is made safely usuable by this means, even though such control is relatively expensive if charged only against the acreage treated. According to results of investigations carried on by the Bureau of Animal Industry, when leaves from normal plants that have not yet formed flower buds are eaten, a quantity as little as 0.5 percent of the animal's weight, if eaten within the space of an hour or so, is likely to poison the animal, and 0.7 percent may kill it.

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GRAZING Loss by Poisonous Plants Reduced on Ranges by Eradication of Plants

Obnoxious range plants in the national forests include species poisonous to livestock, plants that cause mechanical injuries, and aggressive plants of little economic value that crowd out valuable vegetation. The seriousness of the poisonous-plant problem is indicated by the fact that on the national forests the annual loss to stockmen from poisonous plants is approximately half a million dollars. In some instances obnoxious species have become established following the destruction of more valuable plants by fires, overgrazing, etc. In such cases the original plant association may often be reestablished through management which will afford adequate protection to the preferred species. In the case of particularly aggressive plants or poisonous plants which cause serious losses of livestock often the only effective solution is to destroy the plants.

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At this stage of growth the stems have been found to be approximately one half as poisonous as the leaves. As plants grow older they are less injurious, unless larger quantities are consumed. If a longer space of time is required to consume a given quantity of the larkspur the likelihood of injury is less. If, therefore, the supply of living plants is reduced to a scattered stand the danger of livestock losses may be largely removed.

Extermination of Larkspur

The Forest Service, in cooperation with grazing permittees, has been active for several years in exterminating larkspur from areas where most serious losses have occurred (fig. 63). Altogether the plant has been cleared from more than 28,000 acres at an average cost of less than $4 per acre, including regrubbing, which usually amounts to about 25 percent of the original cost. Under average conditions a man can grub about 200 plants per hour. Usually the reduction in losses of cattle in 1 or 2 years has offset the cost of eradication. Where it is not practicable to grub larkspur, on account of the rocky character of the land, the presence of dense stands of shrubs, etc., losses of cattle may be avoided by fencing the infested areas and excluding stock during the period when the danger is serious or until late in the season. In many cases such enclosures are used to advantage as pastures for saddle stock or as holding pastures for cattle during fall round-ups. Another effective way of avoiding losses from larkspur is to utilize larkspur-infested range for sheep, since neither sheep nor horses, under ordinary conditions, are poisoned by larkspur.

FIGURE 63.—Tall larkspur as it frequently occurs in dense stands on western mountain ranges.

Mowing has been found to be a useful means of ridding the range of some undesirable herbaceous plants where they occur in dense stand and where the surface of the land is such that mowing machines can be used effectively. By this means the current year's growth is removed quickly, but it is usually necessary to remow for at least 2 years in order to exterminate the plants. The most effective time to mow is during the early blossoming period.

There is a general interest on the part of experiment stations and commercial firms in the development of chemical plant killers. Effective results have been obtained by the use of such chemicals as sodium and calcium chlorates, common salt, arsenicals, sulphuric acid, carbon disulphide, ammonium thiocyanate, etc. General use of some of these materials under range conditions may be justified if the costs can be reduced sufficiently and, in the case of some, if the danger from poisoning or from combustion can be eliminated.

It is estimated that 1,338,360 acres on the national forests are infested with poisonous plants. Yearly reports indicate that the loss of livestock averages almost 6,000 cattle, valued at $274,000, and 27,000 sheep, valued at $175,000. Eradication of the plants or control of the area, therefore, becomes an important problem in range management. In the development of the plans for the Emergency Conservation Work program, attention was early directed to this project, and many emergency conservation camps in the vicinity of which poisonous plants exist have crews working on the eradication of such plants or control of the area infested.

R. R. HILL, *Forest Service.*

GREEN Mountain National Forest to Aid Development of Forestry in Vermont

With the creation of the Green Mountain National Forest, on April 25, 1932, Vermont became a national-forest State. The total area within the forest boundary is 102,100 acres, of which the Government has purchased 44,520 acres under the Weeks law. It is proposed to purchase the remaining forest lands within the boundary when they can be obtained at reasonable prices. The forest is being acquired under the sanction of the State and with the heartiest cooperation and support of the State forest officials.

The Green Mountain National Forest lies in the southwestern part of Vermont, and along the top and both slopes of the picturesque Green Mountains, east and west of Manchester in Rutland, Windsor, Windham, and Bennington Counties. It is accessible from U.S. Highway No. 7, which skirts it on the west, State Route No. 163, which lies just east and north of it, and Highway No. 11, which is on the south.

The entire forest was cut over in the past, much of it some 20 to 40 years ago. It now contains some merchantable timber, but most of its present stands are too young to cut, though they are fast approaching merchantability and maturity. In general, the forest is made up of thrifty young hardwoods with a small mixture of red spruce, fir, and hemlock. Near the top of the Green Mountains are some dense pure stands of spruce. The most important hardwoods represented are birch, beech, maple, and ash, and to a lesser extent various oaks and cherry. In general, the productive capacity of this forest is high; growth is relatively fast; and there is a young stand composed for the most part of valuable tree species.

The main purposes to be served by this forest are economic: (1) The protection of the headwaters of navigable streams to preserve the waterpower resources and the beneficial influence which the forest cover has on stream flow; and (2) the production of timber, both as a source of raw material for a permanent local wood-using industry and as a demonstration of proper management of Vermont woodlands under good forestry practices.

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The entire forest was cut over in the past, much of it some 20 to 40 years ago. It now contains some merchantable timber, but most of its present stands are too young to cut, though they are fast approaching merchantability and maturity. In general, the forest is made up of thrifty young hardwoods with a small mixture of red spruce, fir, and hemlock. Near the top of the Green Mountains are some dense pure stands of spruce. The most important hardwoods represented are birch, beech, maple, and ash, and to a lesser extent various oaks and cherry. In general, the productive capacity of this forest is high; growth is relatively fast; and there is a young stand composed for the most part of valuable tree species.

The main purposes to be served by this forest are economic: (1) The protection of the headwaters of navigable streams to preserve the waterpower resources and the beneficial influence which the forest cover has on stream flow; and (2) the production of timber, both as a source of raw material for a permanent local wood-using industry and as a demonstration of proper management of Vermont woodlands under good forestry practices.

On the Green Mountain, as on other national forests, all resources will be developed under a coordinated plan of management which will fully realize the main objectives of watershed protection and timber production, and promote the possibilities for recreation and the enjoyment of wild life which the forest affords. To this end the forest has been organized under the supervision of the forest supervisor of the White Mountain National Forest, who has headquarters at Laconia, N.H., with immediate administration under a ranger stationed at Bennington, Vt.

Fire Danger Not Extreme in Vermont

Fortunately the forests of Vermont are not subject to extreme fire danger, although much damage has been done by fires in the past. The steep and rocky western face of the Green Mountains has been seared by fires which in places have killed the timber. To avoid such devastation on the new national forest, a fire organization has been set up and is functioning. In addition, a road system is nearing completion, which gives ready access to the forest, and by means of which the forest may be protected from fire, its products marketed, and recreationists brought to it.

Plans for the management of the timber on a sustained-yield basis are also taking form, and timber management is already being put into effect through sales of saw logs for consumption by local industries. Under these plans the annual cut of timber will be no more than the growth, and cutting will be so regulated that the watershed values of the forest will not be impaired. In the immediate future the amount of timber cut will necessarily be small because most of the timber stands are immature, but as the forest comes into full production, there will be a rapid increase in its annual yield of timber products.

During the year two civilian conservation camps of 200 men each have been established on the forest. These men are completing the secondary road and trail system, as well as putting the young timber stands into better growing condition, through release cuttings and thinnings. Their work will bear fruit through the production of better and heavier stands of timber in a shorter time than if the stands were left untouched by cultural operations.

Under Federal management the forest will give adequate protection to the watersheds, and it will not only produce raw material for a permanent local wood-using industry, but will also provide a demonstration that will be of value to the private timberland owner who may put into use the successful, advanced methods of forest management developed on the Green Mountain Forest. The forest will become, therefore, not only an aid to economic stabilization and an inspiration to the recreationist, but also a positive factor in the successful development of forestry in Vermont.

JOSEPH C. KIRCHER, *Forest Service.*

GYPSY-MOTH Control an Important Measure for Forest Conservation

Restriction of the spread of the gypsy moth and curtailment of the damage it causes to tree growth is of benefit to every citizen of the United States. It is the successful application of the doctrine that "an ounce of prevention is worth a pound of cure."

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An attempt was made by the State of Massachusetts to exterminate this insect during the period 1890–1900, but it failed because the public was misled into the belief that the work was unnecessary, as temporarily there was no perceptible widespread damage in urban districts. Drawing this incorrect conclusion proved to be expensive and has since cost the State of Massachusetts and its citizens nearly $1,000,000 annually. Heavy expenditures on the part of the rest of the New England States, New York, New Jersey, and Pennsylvania, as well as on the part of the Federal Government, have also been necessary. The serious nature of the injury caused by this pest is fully recognized, as is shown by the continuous work that has been done by the States named and the Federal Bureau of Plant Quarantine to check the increase of the insect and to prevent its spread.

The States concern themselves principally with suppressing the pest within their borders, but the funds available are limited and are used largely for the protection of shade trees along roadsides, in public parks, and on private grounds, the work done in the forest areas being confined to a small amount in the more valuable stands. The work being done by the Federal Government has for its prime object the prevention of the spread of the insect on materials that are moved from infested areas to other parts of the United States, the restriction of local spread along the outside border of the infested area in New England, and the extermination of the insect in outlying colonies or isolated areas. Under the first of these purposes, the Department has been largely successful in preventing long-distance spread for more than 20 years. Local spread along the outside border of infestation has also been stopped for the last 10 years, and considerable progress has been made in reducing the infestation in many localities in the outside border territory, known as the barrier zone, in western New England and in New York State east of the Hudson River. In New England there is constant danger of infestations reaching the barrier zone from the territory directly to the east which is rather generally infested. Observations made during the past summer indicate that the insect is increasing rapidly in the territory adjoining the Connecticut River, particularly in New Hampshire, Vermont, and Massachusetts.

Progress in Isolated Colonies

Substantial progress has been made in exterminating the insect in hundreds of small isolated colonies, some of them in States west of New England, and a large infested area in New Jersey aggregating more than 400 square miles has been cleaned up, as well as a number of small colonies on Long Island. During the past year a vigorous gypsy-moth colony was discovered near Pittston, in the northeastern part of Pennsylvania. The insect must have existed there for at least 10 or 12 years, and the source from which it came has not been determined. The limits of the area involved have not been completely determined, but 230 square miles are now known to contain infestation. Vigorous measures are being taken to clear up this infestation which is difficult to handle on account of the mountainous nature of the territory. The work in these instances has been done in cooperation with the States concerned.

Experience has amply demonstrated that large areas can be cleared of this insect and that progress can be made in restricting the spread of the pest.

It is evident that the conservation of forest resources and the development of valuable forest areas to replace much of the waste land which is now unproductive and forms a breeding ground for dangerous pests, can be brought about only by taking such measures as will materially reduce the injury being caused. Certainly the successful prevention of the spread of the gypsy moth is a most practical form of forest conservation when the relatively small area now infested is compared with the enormous areas of susceptible forests in the United States that are in danger from this insect. The protection of these areas from infestation and the resulting damage certain to follow if the gypsy moth is allowed to increase are sufficient reasons for a vigorous policy for suppressing this insect. In addition to this, there is urgent need to preserve shade and ornamental trees and plantings. When it is remembered that the expenditures for gypsy-moth control by the New England States average over $1,000,000 annually, and that most of the funds are spent on shade-tree protection, the importance of the problem is readily apparent.

Forest Conservation Vitally Necessary

There is no immediate prospect of overproduction of good forests; in fact their conservation, development, and protection has never been more vital to the Nation. Adequate protection from destructive pests eliminates waste and unnecessary drain on our national resources.

One of the difficulties constituting a real threat to effective forest development is the existence of enormous acreages of cut-over land in the infested area that are not only unproductive under present conditions but, because of poor varieties of tree growth, are in a state of practical abandonment. Few owners are financially able or willing to go to the expense of improving such stands. The gypsy moth thrives under such conditions and is able to increase and form reservoirs from which the species is dispersed. The prevention of the spread is made more difficult and control operations are more costly in nearby sections while these breeding places are permitted to remain.

A. F. Burgess, *Bureau of Plant Quarantine.*

HORSES and Mules Meet Need for Cheap Flexible Farm Power, Studies Show

Times of prosperity with attendant high prices for products of the soil and notable advances made in the efficiency of tractors were largely responsible for relegating much old-fashioned, horse-drawn equipment to the background in farm operations. The fascination that mechanical power and its equipment had for the farm youth and the speed with which work could be done with such power also contributed to the decline in the numbers of horses and mules on American farms during the last decade.

Most farmers, however, have retained their work stock and equipment in the belief that the use of horses and mules was fundamentally cheaper, and more suitable for the wide range of field work, and that animal power would eventually adjust itself to modern requirements. In many States work-stock owners have made adjustments in this direction during recent years. Hitches have been devised eliminating side draft for working units of 4, 5, 6, 7, 8, or more animals in a single

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In the Corn Belt area of the Middle West, particularly, a pronounced tendency has developed toward the use of improved farm machinery pulled by animal-power units of various kinds and sizes. In many sections, even on farms of moderate size, the old walking plow has generally given way to the sulky and multiple-bottom gang plow, and the familiar 1-row walking cultivator has either been supplanted

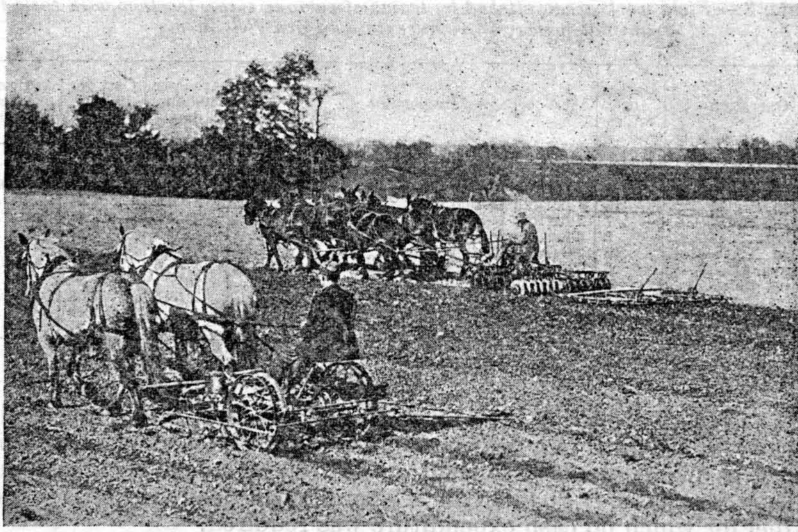

FIGURE 64.—Six-horse tandem disk harrow and two-horse team on corn planter, illustrating adaptability of horse and mule units to varying field requirements.

entirely or supplemented by 2-row or other implements. Single-disk harrows, in turn, have frequently been either converted into tandem-disk outfits or replaced by them. The mechanical corn picker has become popular, and it is a rather common practice to perform two different tillage operations at one time.

Scope of Farm-Power Survey

That animal power is well adapted to meet the demands of this new order of things is indicated by the extensive use of multiple or "big-team" hitches in the Corn Belt, and by the multiplicity of field operations for which animal power is now generally used. Information on these subjects has been obtained in cooperative farm-power studies which this Department conducted in various portions of the Corn Belt and Mississippi Delta, in 1929 and 1930. In Illinois, Indiana, Iowa, Michigan, and Missouri, work records obtained on 736 farms using 4,425 head of work stock showed that animal power was used quite generally for all kinds of farm field work and for farm and road hauling. In plowing, the number of work animals varied from a small unit of 2 head pulling a single-bottom 14-inch plow to 12 head on a 4-bottom 14-inch gang plow. The 12-horse team plowed 11.1 acres each 10-hour day at a cost of 69 cents an acre for animal power. An outstanding accomplishment, both in rate of work and unit cost, was shown by 3-bottom plow outfits pulled by 7 horses. They broke 10.9 acres a day, at a power cost of only 41 cents an acre. Disking with 2 horses cost 27 cents an acre but with 12 horses the cost was reduced to 16 cents. The multiple hitches were made up of good, young horses and mules driven by able horsemen who were getting the most out of their power. Examples of representative field work in the Corn Belt, together with costs for animal drawbar power, exclusive of operator labor, are shown in table 3. Cost figures are for the period of July 1, 1931, to June 30, 1932.

TABLE 3.—*Field work accomplished by teams of various sizes, together with costs for animal power, on representative Corn Belt farms*

Operation	Horses or mules	Implement	Area per 10-hour day	Cost per 10-hour day	Approximate cost per acre
	Number		*Acres*		
Plowing (fall)	4	2-bottom 14-inch plow	4.1	$3.04	$0.74
Do	12	4-bottom 14-inch plow	11.1	7.68	.69
Plowing (spring)	7	3-bottom 14-inch plow	10.9	4.48	.41
Disking	2	6-foot single disk	5.7	1.52	.27
Do	12	20- to 24-foot single disk	47.8	7.68	.16
Harrowing	6	32- to 33-foot spike-tooth harrow	75.6	3.84	.05
Drilling grain	4	10-foot drill	18.1	3.04	.17
Cultivating	3	2-row cultivator	13.5	2.28	.17
Mowing	2	5-foot mower	9.8	1.52	.15

Feed Required

The average time, per head, that these Corn Belt horses and mules worked on the farm in a year was 681 hours. The feed consumed per head was 3,205 pounds of concentrates, 5,166 pounds of roughage, and pasture for a period of 6 months. Generally, this feed may be regarded as fuel for which no cash expenditure was required.

In the Cotton Belt States of Mississippi and Arkansas, farm-power records taken on 161 plantations using 7,011 mules and horses indicate that work stock remains the primary source of motive power. There 87 percent of all drawbar work in the raising and harvesting of crops was done by animal power. Unlike the Corn Belt section, however, the South generally does not seem to have adopted large-sized hitches and the most improved farm machinery. The use of work stock in the South, as exemplified by records in the Mississippi Delta, again emphasizes the economy, versatility, and general utility of the four-legged power plant. Owing chiefly, perhaps, to the "cropper" system of production and to the fact that there generally is no shortage of man power, the hitches used most commonly consist of from 1 to 4 animals. The work done by such animal power usually consists of plowing, stalk-cutting, disking and other harrowing, rolling, bedding, fertilizing, planting, cultivating, mowing, raking, and hauling. The operations of bedding and cultivating required more than one half of the total number of hours spent on all work.

As a rule, the individual horse and mule in the South works a greater number of days in a year than do those in the West and Middle West. The survey records show an annual average of from one hundred to one hundred and twelve 10-hour days of plantation work for each animal used on the 161 plantations. Seventy-four percent of the animal labor was required for crop work. Fuel hauling, the next-largest power requirement, took about 11 percent of the total time.

The feed consumed, per head of work stock, on the 161 Delta plantations averaged 2,927 pounds of concentrates, 5,840 pounds of roughage, and pasture for an average period of 34½ days.

As compared with similar data already given for the Corn Belt, feed consumption in the South is observed to be, in general, somewhat less. This is due in part to smaller size of work animals, which on the plantations studied weighed on an average several hundred pounds less than those used on the Corn Belt farms.

Data on representative field work for Delta plantations, together with costs for animal drawbar power for 1929, are given in table 4.

TABLE 4.—*Field work accomplished by teams of various sizes, together with costs for animal power, on representative Mississippi Delta plantations*

Operation	Mules	Implement	Area per 10-hour day	Cost per 10-hour day	Approximate cost per acre
	Number		*Acres*		
Flat breaking	2	9- to 10-inch plow	1.7	$2.50	$1.47
Flat disking	4	7- to 8-foot single disk	12.3	5.00	.41
Bedding 1 furrow, 36- to 42-inch rows.	2	10- to 12-inch middle buster	6.4	2.50	.39
Bedding 2 furrows, 36- to 42-inch rows.	2	7- to 10-inch plow	3.5	2.50	.71
Harrowing beds, 36- to 42-inch rows.	2	5- to 6-foot drag harrow	10.4	2.50	.24
Disking beds, 36- to 42-inch rows.	2	3- to 4-foot single disk	7.3	2.50	.34
Cultivating 1 furrow, 36- to 42-inch rows.	1	1-mule cultivator	5.9	1.25	.21
Cultivating 2 furrows, 36- to 42-inch rows.	1	do	3.1	1.25	.40

In brief, the surveys showed the flexibility and adaptability of various horse and mule hitches, irrespective of the size, shape, or topography of fields, or soil type, and regardless of whether tillage practices called for the speedy or slow completion of a job.

J. O. WILLIAMS and S. R. SPEELMAN,
Bureau of Animal Industry.

INDEX Data on Prices Paid by Farmers Are Now Collected Weekly Local market prices of articles farmers buy changed rapidly during the third quarter of 1933. During the period from June 15 to September 15, the Department's index of prices paid by farmers for articles purchased advanced from 103 to 116 percent of its pre-war (1910–14) average. This was the most rapid change registered in any 3-month period since the quarterly inquiry on prices farmers pay was first made in 1923.

Evidences of this marked upward adjustment in the cost of products the farmer purchases became apparent long before the next regular quarterly inquiry was due. It became very apparent early in August, that information on prices paid by farmers for articles purchased would have to be collected more frequently if the Department and the newly created Agricultural Adjustment Administration were to keep currently informed as to local market-price movements during that period of swiftly changing economic conditions.

To meet the demand for information, a call was sent to the Crop Reporting Board's regular corps of quarterly price correspondents for volunteers to serve as weekly reporters on the prices farmers pay for a

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To meet the demand for information, a call was sent to the Crop Reporting Board's regular corps of quarterly price correspondents for volunteers to serve as weekly reporters on the prices farmers pay for a selected list of articles. Country merchants in every section were asked to report every week on prices of clothing, food, and household articles. Lumber dealers were requested to send in reports of prices farmers pay for lumber, building materials, and fuel. Hardware and implement dealers were asked to supply the Board every week with prices farmers pay for equipment, supplies, and machinery. Feed, seed, and fertilizer dealers were requested to report weekly prices paid by farmers for the commodities they handled. No monetary compensation was offered local merchants for the performance of this service, and the reporters were not urged to cooperate unless it was convenient for them to do so.

The regular price reporters responded willingly to this call. Whereas a maximum of 300 reporters from each group were expected to offer their services voluntarily on a weekly basis, 1,354 usable questionnaires giving data as of August 9 were tabulated on clothing, food, and household articles, and approximately 1,000 returns on an average were received from each of the other groups. The response was a tribute to the public-spirited attitude of this group of American citizens. In fact, it was so generous that it proved impracticable to handle such a large volume of data every 7 days. Since timeliness is one of the most important requisites of a short-time series of data, it was necessary to select from these volunteers a permanent staff of about 200 regular reporters from each group and to solicit these alone for the prices desired. A comparatively small number of reports received each week from correspondents scattered throughout representative sections of the country then proved adequate for the construction of an index of the weekly movements of prices paid by farmers for articles purchased.

The initial spurt in the upward movement of prices farmers pay started early in July. The sharp advance in the wholesale prices of cotton and other commodities handled on the speculative markets caused buyers to anticipate a higher price level, and they rushed to place orders for raw materials for manufacture in the expectation of selling the finished product later at a handsome profit. This enhanced the demand for raw materials and raised their prices.

The nature of the price system is such, however, that these price increases are not confined to any one group of commodities. The effect is like that of a stone thrown into a pool of water. The splash occurs only at the point the stone hits, but the ripples that result spread, with lessening intensity, to the farthermost corners of the pool. Thus the increased cost of wheat and rising wage rates soon afterward were reflected in an advance in the wholesale price of flour. Then, the country merchant had to replenish his stocks at higher prices and he was forced to charge farmers a higher retail price for flour.

The same sequence of events was repeated in the reflection of higher prices of cotton and rising wage rates in advancing prices of cotton cloth, house dresses, and cotton gloves; and in the reflection of higher prices of other raw materials in the advancing prices charged farmers for other finished goods. Many dealers, however, first disposed of stocks on hand and raised prices paid by farmers only when new orders had to be placed at higher wholesale prices to replenish the supplies on their shelves. Where the farmer purchased feeds and other raw materials direct, the roundabout effect on retail prices was short-circuited, and almost immediately he had to pay higher retail prices for such products. The cumulation of these advances and the after effects of the speculative rise of all commodity prices in July, resulted in a moderate increase in the general level of prices paid by farmers from August 9 to September 20.

Index of Prices Paid Has New Importance

The construction of index numbers of prices paid by farmers has assumed a new importance to the agricultural industry during the past year. Early in the spring of 1933, interest was centered on the Department's regular quarterly index of prices paid by farmers due to its inclusion in H.R. 3835 (the so-called "Farm Act") as a standard for the determination of fair prices for farm products. Among other things, the avowed purpose of this act was "to relieve the existing national economic emergency by increasing agricultural purchasing power." In section 2 of this act, the policy of Congress was declared to be—

> to establish and maintain such balance between the production and consumption of agricultural commodities, and such marketing conditions, therefore, as will reestablish prices to farmers at a level that will give agricultural commodities a purchasing power with respect to articles farmers buy, equivalent to the purchasing power of agricultural commodities in the base period.

This act proclaimed further that—

> the base period in the case of all agricultural commodities except tobacco shall be the pre-war period, August 1909–July 1914. In the case of tobacco, the base period shall be the post-war period, August 1919–July 1928.

The index of prices paid by farmers was thus made the measuring stick of fair-exchange values for farm products. If farmers paid prices averaging 116 percent of the pre-war price for the articles they purchased on November 1, 1933, the price received by farmers for wheat on that date should equal the fair-exchange value for wheat, which is equivalent by law to 116 percent of the pre-war local market price of wheat. Since prices received by farmers for wheat and other farm commodities did not approach their fair-exchange value when this act was being drawn up, the Secretary of Agriculture was given power, among other things, in section 8, paragraph 1—

> to provide for reduction in the acreage or reduction in the production for market, or both, of any basic agricultural commodity, through agreements with producers or by other voluntary methods, and to provide for rental or benefit payments therewith or upon that part of the production of any basic agricultural commodity required for domestic consumption. * * *.

Section 9 of the act provided the levying of processing taxes "to obtain revenue for extraordinary expenses incurred" in this program. Paragraph (D) of this section stated that "the processing tax shall be at such a rate as equals the difference between the current average farm price for the commodity and the fair exchange value of the commodity"; or some fraction thereof, if the full tax would tend to reduce consumption of a particular commodity.

This section makes the fair-exchange value of an agricultural commodity, as figured on the basis of the index of prices farmers pay, a basis for taxation. Although paragraph (C) of this section says that "the current average farm price and the fair exchange value shall be ascertained * * * from available statistics of the Department of Agriculture", it was apparent that current indexes of prices paid by farmers should be available more often than at quarterly intervals for the administration of so important a piece of tax-making legislation. These indexes did not become available until after the processing taxes on wheat and cotton were announced in 1933, but they doubtless will be employed often for such determination in the future.

Weekly price indexes have enabled the farmer and everyone directly interested in the welfare of agriculture to keep their fingers on the pulse of advancing prices paid by farmers for articles purchased and to combat the practice of exaggerating the extent of necessary price advances. It has enabled the Secretary of Agriculture to follow the adjustments in prices paid by farmers carefully and at frequent intervals. It has been an ever-present indication of changes in the local market price structure. It has provided an implement for comparison with available indexes of prices received by farmers in the measurement of the progress of agricultural recovery.

Limitations of the Index

The national index of prices paid by farmers, with all of its advantages has, however, certain rather definite limitations. Its usefulness is limited by the fact that subindexes are not available for the several geographic divisions of the country. Prices of articles farmers buy do not always advance or decline in all sections of the United States at the same time. Even when an advance or a decline is general the change does not necessarily occur by the same amount or in the same proportion in New England as in the Pacific Coast States. Sectional or even State indexes of prices paid by farmers are desirable and will become necessary if all the facts in the situation are to be uncovered.

Another limitation to the indexes of prices farmers pay is the lack of weekly data during the rapidly shifting panorama of local-market price changes during the period from June 15 to August 9, 1933. The failure to collect data during this period made it necessary to fall back on the June 15 data in computing the processing taxes on wheat and cotton and do not aid in studying the response of retail prices paid by farmers to the advance in prices of the raw materials and in the wages and production costs employed in the manufacture of these products. The continuation of the collection of weekly, biweekly, or monthly series of prices farmers pay will provide many valuable data for such studies in the future, however, and will enable all students of agriculture to keep currently informed of the further progress of agricultural recovery in lieu of only the historical information that was available prior to the inauguration of the weekly price-collecting project on August 23, 1933.

ROGER F. HALE,
Bureau of Agricultural Economics.

IRRIGATION of Weeds and Other Noncrop Plants Costly and Unprofitable

That irrigating weeds is costly and unprofitable is obvious. It is doubtful, however, whether most people realize just how unprofitable it is, especially in the irrigated parts of the country where the value of water is high and conservation of the supply is a prime essential to profitable agriculture. Little attention is paid to weed control or eradication in order to save water, and relatively little investigation has been done to determine a measure of the capacity of weeds as water robbers. The question is: What is the measure of the encroachment of weeds and noncrop plants on the water rights of irrigated crops?

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In undertaking to contribute to the answer to this question the Division of Irrigation, Bureau of Agricultural Engineering, has carried on experiments in cooperation with State agencies on the consumptive use of water by weeds and aquatic growths in the last few years in Colorado at Fort Collins, and in California in the Sacramento-San Joaquin Delta and the southern part of the State. The results warrant the statement that in general weeds use more water, in proportion to the ground actually occupied, than do the general run of crops. So if the farmer's weeds do not use more water than his crops, it is because they are not permitted to occupy anywhere near as much ground as the crops.

Experiments Relating to Aquatic Plants

The most striking figures obtained from the experiments relate to aquatic plants, especially the cattail (*Typha latifolia*) and the tule or bulrush (*Scirpus occidentalis*). In the first experiments with these plants they were fully exposed to sun and wind. It was found that the consumptive use of water amounted in the calendar year to from 3 to 5 times as much as on an equal area of alfalfa, one of the heaviest users amongst the crop plants. Later experiments with the same plants set in the interior of areas occupied by the same growths, so as to simulate as closely as possible the conditions of exposure of plants growing on large areas, indicate that under such conditions the consumptive use of water may be only about half as much as when the exposure is extreme. Even so, the water consumed is, acre for acre, four times as much as the average demand of crop plants.

There are numerous other noncrop plants for which figures may be cited. An acre of heavy stand of *Polygonum acre* (which resembles smartweed, and over a large section of the country is known by that name) may consume in a season's growth enough water for the year's irrigation of 3 acres of alfalfa. An area completely taken over by the so-called kelp (*Polygonum amphibium* var. *hartwrightii*) may use twice as much water as alfalfa on the same area would demand. Other plants whose use of water is of about the same order of magnitude as that of kelp are dock (*Rumex* spp.), western golden rod (*Solidago occidentalis*), prickly lettuce (*Lactuca scariola*), cocklebur (*Xanthium canadense*), and nettle (*Urtica gracilis* var.). A thick stand of lambsquarters (*Chenopodium album*) was found to use about 40 percent more water than alfalfa. A mixed growth of volunteer weeds sprouted in June and used in the succeeding 4½ months enough water to have supported alfalfa on the same ground for a year.

These results and others of the same series of experiments have been relied upon in the consideration of the problems arising out of the intrusion of sea water on the Sacramento-San Joaquin Delta.[5] In estimating consumptive use of water by weeds and aquatic growths account was taken of the conditions of the experiments and of those which surround the plants growing at large. Two principal factors to be taken into account in adapting the results of the experiments are the probable tonnage yield of the weeds and the degree of exposure to sun and wind to which they have been subject. For low-lying or sub-

[5] CALIFORNIA DEPARTMENT OF PUBLIC WORKS. VARIATION AND CONTROL OF SALINITY IN SACRAMENTO-SAN JOAQUIN DELTA AND UPPER SAN FRANCISCO BAY. Calif. Dept. Pub. Works Bull. 27, pp. 68 et seq.

irrigated idle land bearing various densities of weed growth it was estimated accordingly that 1.82 acre-feet[6] of water per acre would be consumptively used in one season. Tule areas, including cattails, reeds, and accompanying similar growth, were charged with 9.63 acre-feet per acre. It was also taken into account that weeds growing on fields before planting and after harvest are users of water, and that water-using crops of weeds grow up in fields of sugar beets, corn, and similar crops after cultivation has ceased for the season, especially where subirrigation is practiced. As a summary result, we can deduce, from the figures published, that of the annual consumptive use of water in the delta, amounting to 1,250,000 acre-feet, nearly 300,000 acre-feet, or about 24 percent, goes to sustain plants which serve little or no useful purpose. When the volume of water evaporated from 54,300 acres of open-water surface is subtracted from the total consumptive use in the delta, it appears that of the remainder about 5 parts go to crops and such weeds as grow in the fields with them, and 2 parts to noncrop growths of all kinds which grow apart from the crops.

Similarly, from May to August, inclusive, when the competition of the weeds with crops for water and other elements of plant growth is most clearly real and direct, the weeds and aquatic plants on areas not in crop use each month a little more than one third as much water as is estimated for weeds and crops combined on the cropped area.

Weed Eradication Work Justified

It is not known that similar well-considered estimates of use of water by weeds and noncrop growths have been made for any other region. Such estimates, when made with respect to bodies of land under irrigation, will no doubt show that in general the waste of water in the form of use by weeds and noncrop plants will justify enlargement and intensification of operations aiming at control or eradication of weeds and other intruding growths. It is probable that in only relatively few of them will the figures be as impressive as in the case of the Sacramento-San Joaquin Delta, for there the cropped lands are reclaimed tidal swamp, subirrigation is practiced, ground water is close to ground surface, large areas of tule swamp and open water still remain, and the climate is so mild that it is only in the occasional relatively severe winters that there is not abundant showing of green by native growths even in midwinter. In a majority of irrigated areas there are, nevertheless, conditions favoring the growth of noncrop plants which appropriate a material share of the water for which the farmer pays to serve his crops. Cattails and tules, reeds, water grasses, and other heavy users of water come up on the banks and in the beds of ditches and canals and flourish on seeped areas. In many of these situations the plants are disposed in narrow fringes involving extreme exposure to sun and wind, so that the quantity of water consumed is inordinately great relative to the areas occupied. A stubble field with a high water table, or one which has been flooded soon after harvest, may produce in California with the idea that they aid in preventing erosion by crop plants, or even more.

It may be noted, however, that there are a few items on the credit side of the weed account. A heavy green crop of any of them plowed under is a benefit to the soil, and moreover, some of the weeds are soil

[6] An acre-foot is 43,560 cubic feet, equivalent to a depth of 1 foot on an acre.

builders. Late-season weeds are encouraged on some hillside orchards in California with the idea that they aid in preventing erosion by winter rains.

Some methods of combating weeds are peculiar to lands served by irrigation. Growths coming up after the harvest of crops may be reduced or prevented by withholding water or lowering the water table, or the seeds may, by the application of water, be made to sprout and then be turned under to the increase of soil fertility and reduction of number of weeds in the next season, and, where frost may be depended upon, still later applications of water will insure that the young sprouts will suffer winter-killing before they have accomplished much damage of any kind. The lining of irrigation channels to prevent loss of water by seepage accomplishes at the same time the eradication of a considerable part of the weed growth.

When weeds mature in irrigated country large numbers of the seeds fall or are blown into the ditches and canals, to be diverted and spread upon the land along with the water, and thus make the battle harder.

The Problem Summarized

Points to be noted by way of summary are:

The conditions of irrigated agriculture include some features which especially favor the growth of weeds and the distribution of weed seeds.

The water consumed on irrigated areas by plants which serve little or no useful purpose costs the farmer, directly and indirectly, proportionately as much as that which he is able to apply to his cropped fields.

The methods used to combat weeds elsewhere may be supplemented and reinforced by expedients available only on areas under irrigation.

Under irrigation, the immediate proximity of weed areas to crop areas is not essential in order that the weeds may rob the crops of water, for they both draw on the same supply which man transports from point to point.

In some cases, as in the instance of the Sacramento-San Joaquin Delta, where intrusion of salt water is accentuated by the extraction of water by cattails, tules, willows, and weeds, the heavy water consumption not only deprives crops of a part of their supply, but also impairs the quality of the supply.

O. V. P. Stout, *Bureau of Agricultural Engineering.*

LAND Prices in the East and South as Shown by Government Purchases

The last 3 years have witnessed a tremendous shrinkage of values in practically all kinds of property. Although on wild lands the shrinkage has not been so violent as elsewhere, it is but natural that the conditions causing these reductions should be reflected in the average prices paid for cut-over mountain land in the national forests of the Eastern and Southern States in connection with purchase of such lands by the United States under the Weeks law.

It must be borne in mind that the lands so acquired vary greatly in value, both on account of differences in the quality of soil and even more as a result of the presence or absence of merchantable timber.

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On the whole, however, the lands may be classed as too poor and steep to support any form of agriculture, too brushy and rough to be primarily valuable for grazing, and usually devoid of enough large-growth timber to warrant any commercial logging operation. As a rule there is little prospect of these lands yielding returns to the owners sufficient to do more than carry the taxes and frequently not even that. Nevertheless, the ingrained desire of most Americans for land ownership, and persistent hopes of being able to sell at high prices to buyers desiring lands for special purposes, have led owners to retain their landholdings for many years in spite of the absence of any real prospects of profit.

Land Purchases from 1920 to 1933

During the period 1920 to 1933 land purchases for national forests in the Eastern and Southern States have aggregated about 2,500,000 acres, acquired at a cost of slightly over $11,500,000. Considering the lands purchased in all the States together, it is found that from 1920 to 1924, inclusive, the average prices varied between $3.25 and $4.50 per acre, and then followed an upward turn to approximately $4.80 in 1925 and 1926, reaching a peak in 1927 of $5.60 per acre. In 1928 and 1929 the average descended again to between $4.50 and $4.80. From this point the average fell to $3.60 in 1930, $3.25 in 1932, and $2.58 in 1933. The last 1 or 2 years of the period are marked, not only by falling prices but by a tremendous increase in the volume of lands offered, these being several times greater than the amount that could be purchased with available funds.

Prices in New England

There is, of course, considerable variation in prices between the various localities within the region being considered. For example, in Maine, New Hampshire, and Vermont most of the lands purchased have carried much more merchantable timber than is found in other States. During the years 1920 to 1923 inclusive, the lands purchased averaged between $5 and $6.75 per acre. From 1924 to 1927, inclusive, a period during which almost any sort of tree growth could be marketed profitably in New England, the prices paid were in excess of $8.50 per acre, ranging up to $18 for an especially desirable purchase made in 1926. In 1928 the bulk of the money expended in New England was devoted to the purchase of an unusual tract containing large areas of virgin spruce timber of a character totally different from land ordinarily purchased for national-forest purposes. On account of these unusual features, this tract is disregarded. The average per acre expended for other New England lands in 1928 was $7 and in 1929, $7.75. From this point the average prices dropped to $3.35 in 1930 and $3.30 in 1931. Only one tract of 200 acres was purchased in 1932. In 1933 a total of 25,832 acres, at an average price of $4.63 per acre was approved for purchase. These lands carry considerable timber,

Purchases in Various States

In Virginia and West Virginia, representing on the whole a much lower level of values than those found in New England, the prices varied in the period 1920 to 1924 between a low average of $2.85 and a high average of $4.15. This period was followed by a rise in 1925 to

$4.20 and in 1926 to $5. The average prices for the period 1928 to 1930 ranged from $4.30 to $4.55. A few relatively high priced tracts in 1931 raised the average to $5.15, but in 1932 offerings were going begging at an average price below $3.50. In 1933, a total of 16,415 acres, at the average low price of $2.13 per acre was approved for purchase.

Purchases in Pennsylvania started in 1922 at $2.75, rising slowly to $3.60 in 1925. During the period 1927 to 1931 there was wide fluctuation, the low point being $5.75 and the high, $8.60. In 1932 such lands as were purchased brought approximately $3.45 per acre, and lands approved for purchase during 1933 were priced at very little more.

In Georgia and Alabama the prices varied between $4 and $5.75 from 1920 until 1925. During the period 1926 to 1929 they rose to a minimum of $5.25 in 1927 and a maximum of $5.95 in 1929. Then followed the usual downward curve of $4.60 in 1930, $4.05 in 1931 $3.65 in 1932, and $3.02 in 1933.

In the Carolinas and Tennessee price averages did not follow the usual curve as indicated by other States, largely because of the fact that during the years 1924 to 1927 very few lands were purchased in North Carolina. Toward the end of the Florida land boom and immediately following its collapse, there was great activity in North Carolina in so-called summer-home and recreational developments. Many tracts were actually sold to private buyers at prices representing far more than their actual worth for forestry purposes. The excessive prices demanded led to an almost complete cessation of Government purchases in that State. Purchases were resumed about 1927, the average prices for that year being $5.75, followed by $4.30 in 1928, $4.25 in 1929, $4.45 in 1930, $3.75 to $4 in 1931 and 1932, and an average of $3.02 for land approved for purchase in 1933.

In Arkansas a considerable volume of land was purchased in 1920, 1921, and 1922 at prices ranging from $3.50 to $3.85 per acre. No lands were purchased in 1923, and in the following 3 years there was a steady increase in the volume and a steady decrease in the average price, which was $3.09 in 1924, $2.81 in 1925, and $2.50 in 1926. Both price and volume purchased per year increased rapidly during the ensuing 3 years, the prices for 1927 averaging $3.90 and in 1929, $4.05, during which year over 100,000 acres were purchased. From this point with a continued high volume the prices fell off to $3.25 in 1930, $3.05 in 1931, approximately $3 in 1932, and $1.92 in 1933.

Lands Purchased Vary Widely in Quality

As already stated, the lands acquired are not uniform in quality or value, and this variation is more than sufficient to account for irregularities and fluctuations in the price trend from year to year. On the whole, however, the prices prevalent during the last 2 or 3 years, together with the great increase in volume of lands offered, indicates a general desire to shift the burden of investments in this class of real estate.

P. J. PAXTON, *Forest Service.*

LUQUILLO National Forest an Important Tropical Forest in Puerto Rico The Luquillo National Forest in Puerto Rico, proclaimed by President Theodore Roosevelt in 1903, is the only tropical forest in the Federal system. Located in the Luquillo Mountains, from which it takes its name, in the east-central part of the island, this land, because of its rugged topography and forbidding aspect, escaped being granted to Spanish subjects for services rendered the Crown prior to the transfer of the island to the United States under the terms of the Treaty of Paris.

FIGURE 65.—Portion of Forest Service trail from The Cabin to El Yunque, passing through sierra-palm type. A rock-surfaced trail is necessary to travel on foot as well as with horses.

The importance of this small forest (13,885 acres at present) is quite out of proportion to its size. Situated at the headwaters of several rivers in a region where rainfall averages around 145 inches annually, its beneficial effects on soil erosion and stream flow are great. It contains the only considerable area of virgin timber remaining in the island, and this may serve both as a natural museum and as a laboratory to develop the best methods of handling similar types elsewhere in the West Indies. From a scenic standpoint, it includes three of the outstanding mountain peaks of the island, the best known of which, El Yunque, 3,496 feet in elevation, is reached by a graded Forest Service trail (fig. 65).

The forest itself is both beautiful and interesting. It is composed of a great variety of tropical hardwoods, mostly evergreens, perhaps 30 of which are of commercial importance. The more valuable species occur in the coves and on the lower slopes. Above them the sierra palm predominates, and still higher along the ridges, swept constantly by the trade winds, is the dwarf forest. This type is the result of strong winds, heavy rainfall, and high atmospheric humidity. The trees rarely exceed 20 feet in height, the tops being kept at a uniform level by wind action. Although containing no trees of commercial value, the dwarf forest is tremendously important in an economic way through the protection it affords to the exposed slopes and ridges. It is of scientific interest too because many of the species found there are endemic (fig. 66).

Following the Spanish settlement early in the sixteenth century, the land area of Puerto Rico has been progressively cleared and put into cultivation. Along with the clearing for agricultural purposes went indiscriminate cutting of wood for charcoal and fuel, resulting in the devastation of large areas which will never be cultivated. These lands, to the extent of 400,000 acres or more, are now occupied by worthless brush or poor pastures. Supporting a population of over 1,500,000, or 449 to the square mile, Puerto Rico imports four fifths or more of its wood supply valued at$ 5,000,000 to $6,000,000 annually. The insular government recognizes its forestry problem and is making headway in its reforestation projects. Over 1,500,000 tree seedlings are produced annually and distributed free of charge to landowners Other thousands of trees are planted on insular-forest land.

FIGURE 66.—Dwarf rain forest of roble near top of El Yunque, Luquillo National Forest. Trees covered with moss and dripping with water.

As at present constituted, the Luquillo National Forest is too small to have much effect on the future timber needs of the island. It does, however, contain a considerable quantity of timber of species valuable for cabinet work and construction purposes. This material will be made available from time to time as additional transportation facilities render it accessible, but the primary objects in the management of this small forest will be (1) to determine and demonstrate the silvicultural practices applicable to the forest types found in the Luquillo Mountains, concerning which little or nothing is known at present; (2) to maintain a forest cover on the steep mountain slopes to assist in controlling stream flow and erosion; and (3) to develop the recreational and aesthetic features of the forest. As one item of this program, a considerable portion of the area will be kept in its original condition, undisturbed by cutting of any kind.

R. M. EVANS, *Forest Service.*

MAGNESIUM Deficiency in Certain Soil Types Reduces Potato Yields During recent years potato growers in different sections, particularly in States along the Atlantic seaboard, have complained to Department of Agriculture and experiment station workers that "something is the matter with my potato field." From Aroostook County, Maine, for example, one of the leading table and seed-stock potato-producing sections of the United States, reports emanated in the spring of 1929 to the effect that a "new potato trouble" or "sickness" had shown up in potato fields. An inspection of many potato fields by Federal and State specialists in late June of that season disclosed abnormal foliage symptoms, the most conspicuous of which was a chlorotic condition, there being a marked change in the color of the foliage, from a normal green to varying shades of yellow. The failure of the potato plants to develop their normal green color was associated with the lowest leaves or those formed when the plants were comparatively young.

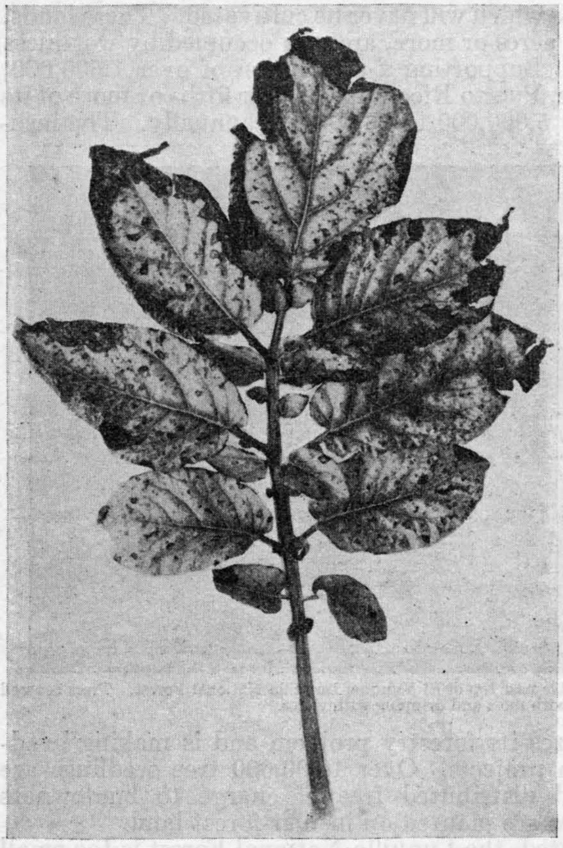

FIGURE 67.—Lack of available magnesium in soil caused breaking down of potato leaf, chiefly at the tips and margins.

In severe cases it was observed that the chlorotic condition or yellowing became progressively worse, sometimes involving the entire plant. As a rule, however, mainly the lowermost leaves were affected, the yellowing beginning at the tips and outside margins and later invading the leaf between the veins. Later foliage appeared to "grow out" of the trouble, so far as the yellowing was concerned. It was noted also that there developed a thickening of the leaves with a distinct brittleness, easily detected when crushed in the hand. Latest stages involved a bulging of the leaves between the veins, some rolling of the entire leaf leading to a breaking down of the internal structure with brown dead tissue in evidence (fig. 67). The culmination of the trouble proved to be loss of foliage necessary to starch formation. An examination of the soil where the trouble occurred showed high soil acidity. Yields where the trouble occurred were greatly curtailed.

What appeared to be a similar disturbance was noted several years ago in Suffolk County, N.Y. Yellowing of foliage, stunted growth, and reduced yields were the pronounced effects. Here again the lowermost leaves were affected, later foliage more nearly approaching a normal green color. The soil on which the yellowing first appeared was lighter in texture than the general run of good potato soils in Suffolk County. As the trouble became more pronounced, soils of better quality also were more or less involved. To some extent a similar condition was noted in potato fields in New Jersey, although the yellowing was not so pronounced or so general as observed elsewhere. In New Jersey and on Long Island the trouble was ascribed to excessive soil acidity and to the use of heavy row applications of fertilizer capable of accentuating soil acidity.

Two Types of Injury Disclosed

In the spring of 1931 reports emanated from the Norfolk and Eastern Shore sections of Virginia concerning a so-called potato "trouble". A survey was made of upwards of 60 potato fields; two types of injury were disclosed. The more prevalent type consisted of yellowing or chlorosis of the lower leaves, the upper leaves retaining a more nearly normal color. The plants were affected while relatively young, the yellowing apparently inducing a stunted growth. This condition was particularly noticeable on sandy slopes subject to light washing. Plants growing in low places possessed a much better appearance, having normal color and profuse blooms. The affected plants showed little, if any, blossoming. In fields where manure, green rye, or alfalfa had been turned under there was no sign of the yellowing or stunting. The yellowing of the foliage in Virginia was found to have been most pronounced after a period of relatively low temperature and excessive rainfall, suggesting a retardation of growth on the one hand and, on the other, soil leaching of plant-food constituents, possibly those connected with the formation of chlorophyl, the green coloring matter of plants.

In a majority of the fields examined the soil was quite acid, as was the case in Maine, New Jersey, and Long Island. It was also ascertained that the majority of growers in the different sections on whose farms the trouble occurred had used a fertilizer which, when added to the soil, developed a degree of acidity considerably greater than the soil naturally possessed.

In the use of fertilizer, a ton to the acre being commonly applied for potatoes in the different sections, it was found that the increasing tendency to take advantage of the cheapest sources of nitrogen had led to the inclusion of large amounts of ammonium compounds, chiefly ammonium sulphate, in fertilizer mixtures, which intensified the acidity of the soil close to the roots of the potato plants. Another factor to be considered is the effect of soil acidity on the leaching of basic soil materials, such as lime and magnesia compounds, from the surface soil. This would probably become more marked in the case of magnesium compounds, owing to the fact that fairly large amounts of calcium are applied to the soil if superphosphate is an ingredient of the fertilizer mixture.

Reports concerning the yellowing of potato vines, premature ripening, and reduced yields, have come from other potato-producing sections, which suggest that certain factors might be common to the soil types affected along the Atlantic coast. These factors have been found to be generally as follows: (1) High soil acidity; (2) use of heavy applications of acid-forming fertilizer applied in the row at time of planting; (3) need of organic matter; (4) leaching effect following heavy rainfall; (5) leached or thinly eroded areas; (6) ineffective liming; and (7) seasonal conditions, chiefly rainfall.

Deficiency of Magnesium Discovered

Investigational work to determine the cause of the trouble showed that some plant-food element associated with chlorophyl formation was deficient in the soil or fertilizer. Field tests have shown clearly that the deficient element was magnesium, as the addition of suitable magnesium compounds to the fertilizer prevented the yellowing and stunted growth. The potato plants in fields so treated were normal in every respect and produced much greater yields than those in the fields receiving the same quantity of fertilizer to which no magnesium compound was added.

During 1932 cooperative field experiments were started on prominent soil types in Maine, New York, New Jersey, and Virginia to determine to what extent magnesium compounds were needed by these soil types. The soil types under study are the Caribou loam in Maine, the Sassafras loam in New York and New Jersey, and the Norfolk sandy loam and Sassafras sandy loam in Virginia.

As a result of these tests it has been definitely shown that some soils in Aroostook County, Maine, are subject to magnesium deficiency. The Maine Agricultural Experiment Station reports increased yields as high as 66 barrels to the acre brought about by the addition of magnesium sulphate to the ordinary 4–8–7 fertilizer. Cooperative tests conducted in 1932 and 1933 afford a further idea of the magnesium requirements of potatoes grown on Caribou loam. While not so marked in 1932, there was in 1933 an increase of 24 bushels because of the application of magnesium in one of the field tests, and in another an increase of 76 bushels. In other tests on Caribou loam the increases were not so significant.

On Long Island and in New Jersey no marked responses have been secured from the use of magnesium and lime compounds in the fertilizer. The practice of making light applications of limestone carrying some magnesium to lower the acidity of the soil has been followed for some time in these potato-growing sections, and this may account for the failure to secure increased yield from the use of magnesium compounds.

In Virginia, on a field of Norfolk sandy loam which was markedly acid, the effect of adding magnesium sulphate to the fertilizer proved highly beneficial, an increased yield of 48 bushels to the acre resulting. On another field of Norfolk sandy loam where the soil was decidedly less acid no significant response from magnesium was obtained.

In magnesium experiments on Sassafras sandy loam in 1932 and 1933 in the vicinity of Cape Charles, Va., application of different magnesium compounds or lime carbonate failed to give significant differences in yield. This can be explained on the basis that dolomitic limestone was applied in the fall of 1931 following the Virginia potato-field survey. It appears in these tests that dolomitic limestone, when finely ground and applied enough in advance, was helpful both in lowering the soil acidity and furnishing enough magnesium for the potato plants.

Chemical analyses of potato foliage, both normal and chlorotic, have shown clearly that the intake of magnesium is much less with the latter. When the magnesium content of potato foliage dropped below 0.15 percent, mild yellowing usually occurred. When the magnesium content registered 0.1 percent and lower, the injury to the plants was serious both in vine growth and yields.

In connection with the magnesium-deficiency studies it will be of interest to refer to figure 68, which shows the regional distribution of magnesium in rivers and lakes over the United States. While an approximation only of the magnesium present and bearing indirectly on the soil relationship, the chart serves to bring out the low content of this element along the Atlantic Coastal Plain, where light soils subject to heavy leaching prevail and where, moreover, magnesium-deficiency troubles have been most prevalent.

There are several ways of adding magnesium to a soil deficient in this element—(1) applying dolomitic limestone to the soil direct, (2) adding

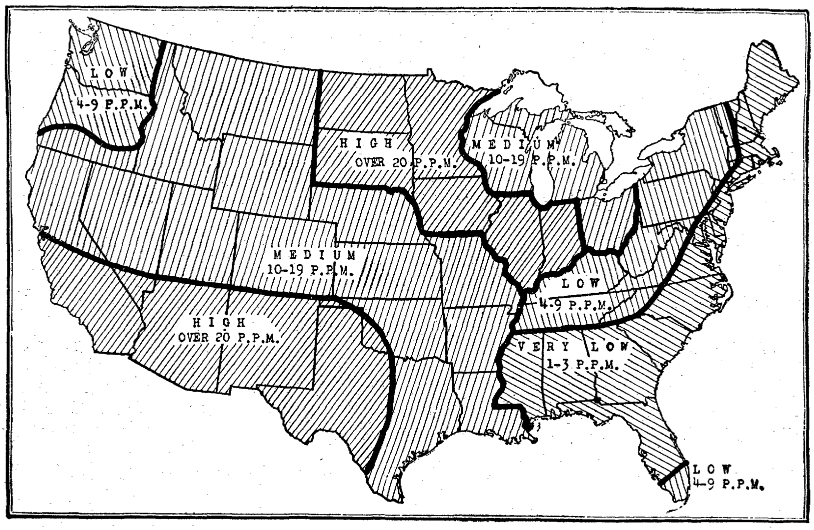

FIGURE 68.—Regional distribution of magnesium in river and lake waters. Based on compilation of analytical data from United States Geological Survey Professional Paper No. 135.

dolomitic limestone to the fertilizer, or (3) adding some quickly available magnesium compound to the fertilizer, such as ordinary or calcined magnesium sulphate, double sulphate of potash-magnesia, or one of the commercial preparations supplying soluble magnesium.

The use of magnesium compounds to correct magnesium deficiency is an important matter for the potato grower and fertilizer manufacturer to consider. Both should be guided not only by the immediate magnesium needs of the potato crop, but more important still they should give serious consideration to a soil-management program which will tend to put the soil in better condition by lowering the acidity of the soil and still avoid any danger from scab. The farmer should increase the organic-matter content of the soil and at the same time make provision for an adequate supply of magnesium for the needs of his crops by using some magnesium in his fertilizer or liming materials.

B. E. BROWN, *Bureau of Chemistry and Soils.*

MARKETING Agreements on Various Crops Increase Returns to the Growers In addition to adopting production-control and benefit-payment programs in connection with so-called "basic crops", the Secretary of Agriculture also has authority under the Agricultural Adjustment Act—

To enter into marketing agreements with processors, associations of producers, and others engaged in the handling, in the current of interstate or foreign commerce of any agricultural commodity or product thereof, after due notice and opportunity for hearing to interested parties.[7]

Thus agricultural industries other than those named as basic, finding themselves with burdensome surpluses, were offered a Federal instrument to assist them in formulating and executing methods of procedure for coping with those surpluses. Marketing agreements pertaining to crops other than those designated as basic are handled by the Special Crops Section of the Agricultural Adjustment Administration.

A marketing agreement as one of the means of accomplishing the purpose of the Agricultural Adjustment Act represents a legal contract between the Secretary of Agriculture and the parties thereto. It binds them to certain methods of procedure in the control of merchantable supplies of a commodity as to prices, trade practices, or other arrangements. In contrast to contracts used in acreage-control programs, growers do not sign marketing agreements as individuals but as "associations of producers." If a grower is also a shipper in interstate or foreign commerce, he may sign as a shipper.

If he deems it advisable, the Secretary of Agriculture may issue licenses in connection with marketing agreements—

Permitting processors, associations of producers, and others to engage in the handling in the current of interstate or foreign commerce of any agricultural commodity or product thereof, or any competing commodity or product thereof.

Licenses are revocable by the Secretary, and penalties are provided for operating without a license. Marketing agreements are not approved until representatives of a very large percentage of the tonnage have signed. When licenses are issued in pursuance of the agreement, they are issued to all handlers involved. It will be noted from the wording of the act, that if a license is issued no one is permitted to operate without it.

The act also authorizes the Secretary to issue licenses without any regard to the existence of marketing agreements. To date (December 1933) this power has not been exercised. Licenses have been issued only as an aid to the enforcement of the terms of marketing agreements. The licensing authority, however, places the Secretary in a position to correct unfair trade practices or charges in a manner similar to that previously authorized for the handlers of perishable agricultural commodities through the Perishable Agricultural Commodities Act.

Object Is Restoration of Farm Purchasing Power

The objective of marketing agreements like the acreage-reduction programs for basic commodities is the restoration of agricultural purchasing power. If a marketing agreement is to be successful in en-

[7] UNITED STATES STATUTES AT LARGE. AGRICULTURAL ADJUSTMENT ACT. U.S. Statutes at Large 48: 31-54. 1933. (73d U.S. Cong., 1st sess., H. R. 3835, par. 2, sec. 8.)

hancing the returns to growers as compared with returns that would otherwise prevail, the agreement must influence economic processes in such a manner as to bring about this result. In the case of the basic commodities, immediate relief is available through benefit payments resulting from processing taxes. The benefit payments are linked to a production-control program designed to reduce the volume of production forthcoming at a subsequent marketing period. Further benefits then accrue through the natural rise in market price.

The benefit-payment plan is not applied in the case of marketing agreements. Benefits through marketing agreements accrue through the influence that their execution exerts upon market price or through fixed or minimum prices stipulated. The principal ways in which returns to growers may be elevated or prevented from falling are three: (1) Reducing the merchantable supply; (2) regulating the market flow of supply either as to time or place; and (3) reducing price spreads between producers and consumers.

No blanket prescription can be applied to all commodities. In each individual case it is necessary to determine what the situation is, why it arose, and why it persists. A marketing agreement drawn for canning peaches should not be expected to be completely applicable to fresh deciduous fruit or to citrus fruit. The price-influencing forces differ in each case because of the difference in the character of the commodities and the manner in which they are handled. Flexibility is one of the outstanding characteristics of the Agricultural Adjustment Act. It does not lay down hard and fast procedure to be followed in all cases. In the case of marketing agreements, no fixed, iron-clad agreement is intended to be applied generally.

It may be well to distinguish between codes and marketing agreements. Codes of fair competition are authorized by the National Industrial Recovery Act for the purpose of eliminating unfair competitive practices, reducing and relieving unemployment, improving standards of labor, promoting the organization of industry for the purpose of cooperative action among trade groups, and otherwise rehabilitating industry and conserving natural resources. A code, therefore, is viewed primarily from the standpoint of its direct effect upon the welfare of the members of an industry, and the laborers engaged in it.

Marketing agreements, on the other hand, are authorized by the Agricultural Adjustment Act, the purpose of which is to improve prices to farmers, and marketing agreements must be examined with the purpose of this act in mind.

An effective marketing agreement cannot be developed purely upon the basis of the fact that the parties to the agreement agree to do certain things. A successful agreement must be predicated upon an analysis of the economic problems faced by an industry. It must include provisions which, when executed, contribute toward the solution of those problems. Commodity price and marketing research on the part of impartial agencies such as the United States Department of Agriculture, the State agricultural colleges, and other research departments is of prime importance. Benefit from restricting the supply of a commodity can accrue only if a small supply will in a given season bring a greater total return than a large supply. A decision as to the extent to which supplies should be restricted is greatly facilitated when price-supply relationships and trends are known. Trends of price-supply relationships reflect long-time influences arising from changes in consumer buying habits or from changes in the general price level. A knowledge of the degree to which price is affected by the direct competition of other products, and by the export situation, is of vital importance. These are the economic bases upon which marketing agreements must be built.

Human Relationships Involved

Marketing agreements can, however, not be based solely on cold economic consideration; human relationships must be taken into account as well. The interests of growers as producers, growers as cooperative associations, independent shippers or processors, and financial institutions, are frequently quite divergent. Violent clashes between the interests of these groups must be tempered through compromise and a spirit of cooperation toward a common end.

The interests of consumers must be protected. The Agricultural Adjustment Act stipulates that the proportion of the consumer's dollar which is returned to the farmer is not to be increased above the percentage prevailing during the period August 1909 to July 1914. For most crops grower prices represent a small proportion of the prices paid by consumers. Hence the danger of placing an undue burden upon the consumer is not great, provided care is taken to see that the agreements do not widen distributive margins. The Agricultural Adjustment Administration includes a consumer's counsel and all proposed marketing agreements are carefully examined from the standpoint of their effects upon consumers.

TABLE 5.—*Marketing agreements entered into in 1933 through the Special Crops Section of the Agricultural Adjustment Administration*

Commodity and area involved	Effective date	Unit	Volume included under agreement	United States volume	Percent
	1933				
Cling peaches canned in California	Aug. 17	Cases	[1] 10,000,000	10,000,000	100.0
California fresh deciduous-tree fruits [2]	Sept. 2	do	[3] 23,776	130,934	56.0
Northwest [4] fresh deciduous-tree fruits	Oct. 14	do	[5] 49,077		
California Flame Tokay grapes	Sept. 30	do	4,032		(6)
Walnuts grown in California, Oregon, and Washington.	Oct. 9	Tons	43,900	43,900	100.0
California ripe olives used for canning	Dec. 13	do	12,000	12,000	100.0
Oranges, grapefruit, and tangerines:					
California and Arizona	Dec. 14	Boxes	27,508,000		
Florida	do	do	22,866,000		
Texas	Dec. 26	do	1,638,000		
Total (including mixed citrus)		do	[7] 52,012,000	52,180,000	99.7
Canning tomatoes [8]	August	Tons	993,400	993,400	100.0
Canning corn [8]	do	do	393,000	393,000	100.0
Canning lima beans [8]	do	do	8,800	8,800	100.0
Canning beets [8]	September	do	24,800	24,800	100.0
Canning cabbage for sauerkraut [8]	do	do	95,400	95,400	100.0

[1] Basis, 24 no. 2½ cans. Actual pack exceeded this slightly; the exact amount has not yet been determined.
[2] Except apples. (Agreement was not consummated early enough to be operative for 1933.)
[3] Includes apricots, cherries, peaches, pears, plums, and fresh prunes for 1933.
[4] Washington, Oregon, Idaho, and Montana.
[5] Total of cherries, peaches, pears, plums and fresh prunes shipped in 1933 and apples in 1932–33.
[6] Represents 25 percent of table grapes shipped from California. United States table grapes not listed separately.
[7] Average boxes per car, California and Arizona, 462; Florida and Texas, 360. (Florida and Texas include truck.) Crop year, 1932–33.
[8] At the request of the Agricultural Adjustment Administration, the canning industry agreed to voluntary price increases to growers. (No licenses issued.)

Source of data: Compiled from records of the Special Crops Section and reports issued by the Bureau of Agricultural Economics of the U.S. Department of Agriculture. (All data subject to minor revision.)

Marketing agreements have been adopted for the following nonbasic crops: Cling peaches canned in California; California deciduous-tree fruits except apples; California Flame Tokay grapes; walnuts grown in California, Oregon, and Washington; Northwest—Washington, Oregon, Idaho, Montana—fresh deciduous-tree fruits; California ripe olives used for canning; and, oranges and grapefruit (3 agreements—1 for California and Arizona, 1 for Florida, and 1 for Texas). Table 5 shows the marketing agreements that have been entered into in 1933 through the Special Crops Section, their effective date, and the approximate volume of the commodity involved in the agreement.

It is too early to evaluate comprehensively the benefits that growers have derived from these agreements. An appraisal of the benefits to growers derived from the cling-peach agreement indicates that because of it returns to growers were increased between $2,500,000 and $3,000,000 above that which might reasonably have resulted without the agreement. Information from the fruit districts of the Pacific Northwest indicates that debts are being liquidated, largely as a result of increased benefits accruing from the marketing agreement covering deciduous fruits.

Marketing agreements if properly applied offer an instrument that may be used effectively by many agricultural industries. It is essential that they be drawn and executed on an economically sound basis. In cases where agreements provide fixed prices, a rigid control of supplies marketed is necessary. These agreements are industry programs in which the Agricultural Adjustment Administration acts, until their adoption, in an advisory and coordinating capacity. Following the adoption of an agreement the Administration lends its legal authority toward effective execution.

Because of divergent interests, the formulation and execution of marketing agreements require good local leadership, not only on the part of citizens but also on the part of agricultural colleges and other agencies in a position to make fair appraisals of given situations in given agricultural industries.

In the case of many perishable or semiperishable commodities the problems of restricting the supply marketed or of regulating the time of movement to market are particularly susceptible to handling by means of marketing agreements.

E. W. Braun,
Agricultural Adjustment Administration.

MEAT May be Chilled and Cured Successfully in a Home-Made Cooling Box

An ice-chilled meat-curing box that can be made on the farm without skilled labor has been designed by the Department for use in curing home-dressed meat in the summer or when natural winter temperatures are above 40° F. This equipment can also be used for storing other products that are not affected by a moist atmosphere. The box consists of an insulated outer shell, inside which is a crate for holding the meat. A removable metal cover fits over the top of the crate so that ice can be placed above the meat as well as on both sides. With this arrangement temperatures below 40° F. can be obtained with ice alone (fig. 69).

Temperature control is the most important factor in the successful curing of pork. Bacteria that are present in the tissues of many hogs

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Temperature control is the most important factor in the successful curing of pork. Bacteria that are present in the tissues of many hogs at time of slaughter will spoil the meat if they are allowed to grow. Salt is applied to stop the development of these bacteria, but the penetration of the salt into the center of the cuts takes weeks. Low temperatures are the best known means of preventing the multiplication of the bacteria until the salt has had a chance to work into the meat and stop their growth.

Packers chill freshly slaughtered hogs to between 36° and 38° F. within the first 24 hours, if possible. They hold the meat at that tem-

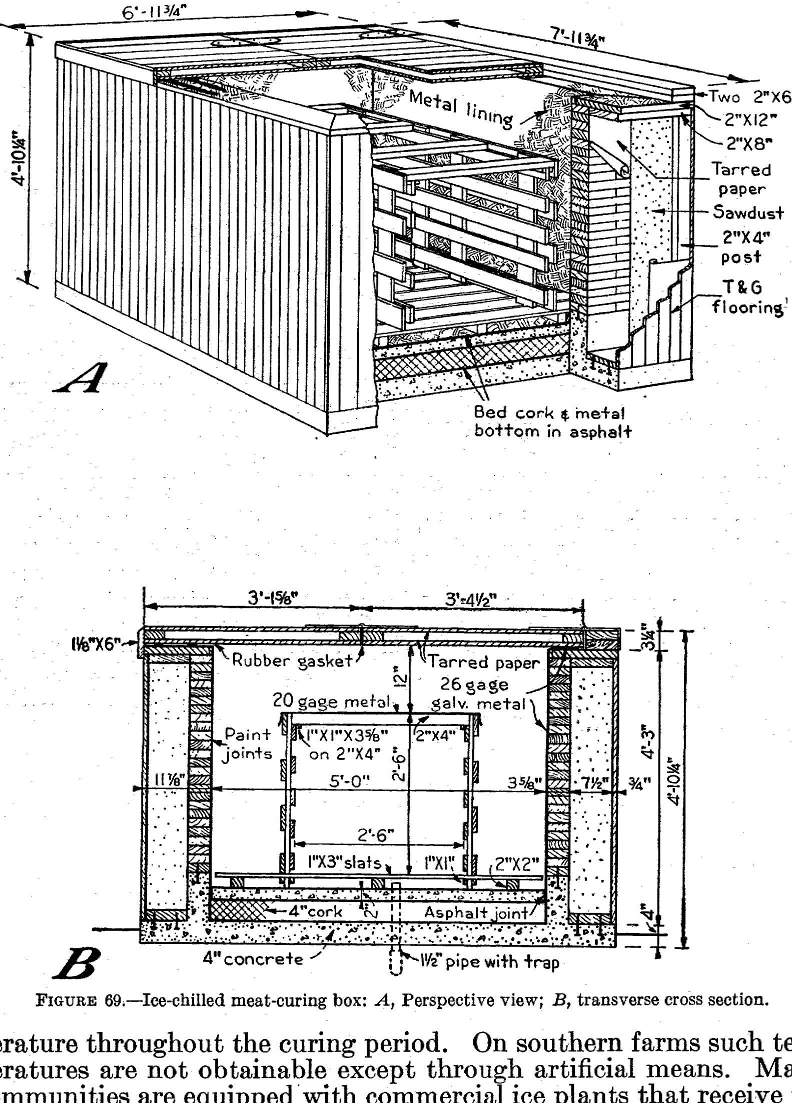

FIGURE 69.—Ice-chilled meat-curing box: *A*, Perspective view; *B*, transverse cross section.

perature throughout the curing period. On southern farms such temperatures are not obtainable except through artificial means. Many communities are equipped with commercial ice plants that receive the meat, chill it, and cure it at the temperatures mentioned. Though many localities do not have such facilities, it is usually possible to obtain manufactured ice within hauling distance. Many farmers find it more convenient and less expensive to buy ice to chill and cure their meat than to utilize the facilities of a commercial cold-storage house. To meet the needs of such farmers, Department specialists designed and tested an ice-chilled box that can be built with farm labor and that will maintain the necessary low temperature throughout the curing period. Summer curing of meat is also practical with this equipment.

Tests of Box Show Effectiveness

In the first test, previously chilled hams, shoulders, loins, and bellies from hogs weighing from 250 to 350 pounds were successfully drycured in the box. Inside temperatures of the box were maintained at 36° F. even though the outside air temperatures ranged from 65° to 90°. Ice consumption was about 1 pound for each pound of meat for the required 40-day curing period.

A second and more severe test included the chilling as well as the curing of the meat. Whole sides of freshly slaughtered hogs weighing from 300 to 400 pounds alive were laid in the crate with wooden strips between them to permit air circulation. At the end of 6 days the internal temperature of the hams and shoulders had dropped from 100° F. to 38° F. The sides were then removed and cut, the curing mixture was applied to the trimmed pieces, and the meat was returned to the box for curing. All this meat was cured and smoked successfully and remained sound during summer storage. Ice consumption in this case was about 2 pounds per pound of meat for the entire chilling and curing process.

Although this unusually severe second test was successful, it is not recommended for general use. In practice the hogs are slaughtered on as cold a day as is available. The carcasses are chilled overnight and cut into pieces for curing. The meat is salted lightly and piled loosely in the ice-chilled box over the second night to cool more thoroughly. On the second day the chilled cuts are given the regular drycure and packed in the box, which is kept iced for the time required to cure meat of that particular weight.

Insulation Should Be Dry

The box consists of a crib of 2 by 4's, with an outer shell of tongue-and-groove flooring, as illustrated. The space between the crib and sheathing is insulated with dry sawdust or shavings. The insulation must be dry. To give more efficient insulation the 2 by 4's should be painted as they are spiked together. This painting, together with an inner lining of galvanized iron, presents a most effective barrier to moisture, the enemy of cold-storage insulation.

In the box shown in figure 69 the floor is insulated with 4 inches of cork, coated with tar and covered with concrete. This more expensive, but more efficient and more permanent, construction has been replaced by sawdust in adaptations of this box designed by several of the State agricultural experiment stations. Meat has been cured successfully in these cheaper boxes, but it should be remembered that the bottom offers the greatest opportunity for loss of refrigeration, and permanently efficient construction must be able to withstand moisture, settling, and warping. For this purpose, cork, tar, and concrete are superior.

It is rarely possible to obtain temperatures below 45° F. when the ice is stored only above the meat. The low temperature of 36°, obtained in this box, was due to the fact that ice was on both sides of the meat as well as above it. Although this arrangement requires more room for ice and more ice for the original filling, it produces the desired low temperature. If alterations in the design of the icing compartment are made, temperatures under 45° F. will probably be difficult to obtain.

The box illustrated has a capacity of about 1,800 pounds of meat and 1,600 pounds of ice. The length and height of the box may be modified to suit the capacity needed, but the width of the crate should not be increased.

Box Useful for Other Products

In this ice-chilled meat-curing box the humidity of the air is practically at the point of saturation, a fact that should be considered when the box is to be used for other commodities. Chilled fresh meat will become wet and develop surface slime if stored in it for considerable periods. On the other hand, the box is suitable for other food products and many bottled and packaged goods that are not affected by moisture. Ice itself can be held in these boxes for later use with only a small storage loss from melting.

These boxes also afford a dark, insect-proof storage for smoked meat held through the summer at slightly below air temperatures. Although no ice or other refrigeration is needed for holding cured smoked meat, care should be taken to provide some ventilation. Mold will appear on smoked meat so stored, but it should cause no unusual trouble if scrubbed off before the meat is cooked. A complete plan and bill of material for this meat-cooling box, designated by serial no. 2709, may be obtained on request from the United States Department of Agriculture. The material used in the test box cost $67.

K. F. Warner, *Bureau of Animal Industry*, and
T. A. H. Miller, *Bureau of Agricultural Engineering*.

PASTURES Offer Sound Means of Decreasing Feed and Food Surplus In the development of the United States there has been a tendency toward increased production of livestock and livestock products. The methods used have been improved breeding, better methods of feeding, increased acreages of cultivated crops, and farming the land more intensively.

Now with reduced exports and less domestic demand there is need to curtail production. To accomplish this most effectively, a program of reducing the acreage of harvested crops and seeding such land to pasture has been undertaken. This reduces the quantities of feed available for livestock since the yields of most harvested feed crops are nearly twice the yields of the same land in pasture. The program also reduces materially the cost of labor and equipment needed.

The average of 3 years' records on more than 100 farms in central Indiana shows that a 5-year rotation of corn, corn, oats, wheat, and red clover will produce annually about 1,800 pounds per acre of digestible nutrients in the form that crops are ordinarily handled and fed on Corn Belt farms. On the other hand, red clover used for pasture produces about 1,000 pounds of digestible nutrients. The same land in a permanent pasture of bluegrass or a mixture of grasses and legumes will produce even less than can be obtained by pasturing red clover the year following its seeding in oats or wheat. The 5-year rotation of crops requires about 10.2 man-hours, 14.6 horse-hours, or 1.5 tractor-hours per acre annually.

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In a similar study of land utilization in southern Indiana, the annual labor requirement for bluegrass pasture was less than 1 man-hour per acre annually. In addition, the erosion from land in the ordinary rotations of feed crops is many times that from pastures. And, on account of the greater yields of harvested feed crops and the fact that they are usually removed from the land, the use of land for pasture is much more favorable to the maintenance of its fertility. Of course, the manure from livestock fed harvested crops may be returned to the soil, but that generally involves considerable labor and waste.

Greater Profits from Farms with Ample Pasture

The above-mentioned study of land utilization in 1928 in southern Indiana, where the land is rolling, shows further that farms having one half of their area in pasture tended to be more profitable than those which have only one fourth of their area in pasture. The increased use of pasture at the expense of corn and similar harvested crops in the more productive areas may not be more profitable to the individual, unless other farmers joined in a program of controlled production.

Such a program of reduced acreage in harvested crops involves less intensive methods of producing livestock. This reversal of policy pre-

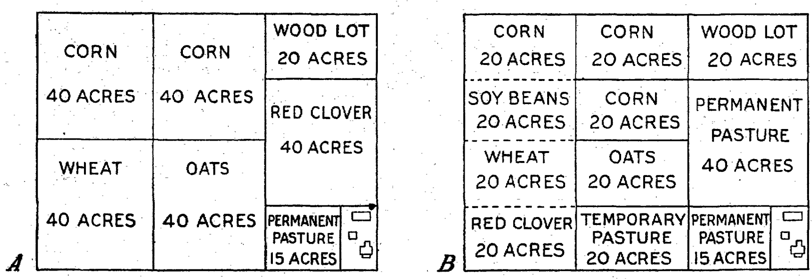

FIGURE 70.—*A*, Diagram of a 240-acre farm with 200 acres in harvested crops; *B*, the same farm with 60 acres, or 30 percent, of the harvested-crop acreage seeded to pasture. The crops are shown in fields where they would appear in 1 or more years of each rotation. Fences indicated by solid lines. Dotted lines show unfenced boundaries of fields; fences may be added as needed.

sents many new problems in the management of such pasture lands and livestock.

On farms which have several fields of uniform size in a rotation, it may be necessary, when providing for pasture, to change the rotation or increase the number of fields on the land kept in cultivation. It is usually cheaper and easier to change the rotation than to build new fences. In some cases it may be desirable to use two rotations instead of one by relocating a few fences. A sample farm of 240 acres is used to illustrate how some of the adjustments may be made, since there is infinite variety in the organization of individual farms and no one example can be made to fit all cases. On such a farm, a 5-year rotation of corn, corn, oats, wheat, and red clover on five 40-acre fields could be changed by seeding one of the fields to permanent pasture, and dividing the four remaining forties into 20-acre fields and using a 4-year rotation on each of the two 80-acre tracts (fig. 70).

The new rotations provide for a reduced acreage of grain crops formerly grown and a few new forage crops such as soybeans, sweetclover, lespedeza, and Sudan grass. By having the rotation containing temporary pasture located on land near the permanent pasture and fencing

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each 20-acre field, the stalk and stubble fields as well as the temporary pasture can be used conveniently in connection with the permanent pasture. Since the crops in the other rotation of corn, soybeans, wheat, and red clover are all harvested, it should not be necessary to maintain any cross fences on that 80-acre tract. If many sheep are to be kept on the farm the 40-acre permanent pasture may be divided into two or more such pastures so that rotation grazing can be practiced to help in controlling parasites. On a farm where hogs are a major enterprise it is a good plan to have a separate rotation, for the hogs, with one crop, preferably a legume, to be grazed and another such as corn to be hogged down.

Merits of Temporary and Permanent Pastures

Before seeding additional pasture on a farm it is a good plan to consider the advantages and disadvantages of each kind of pasture and

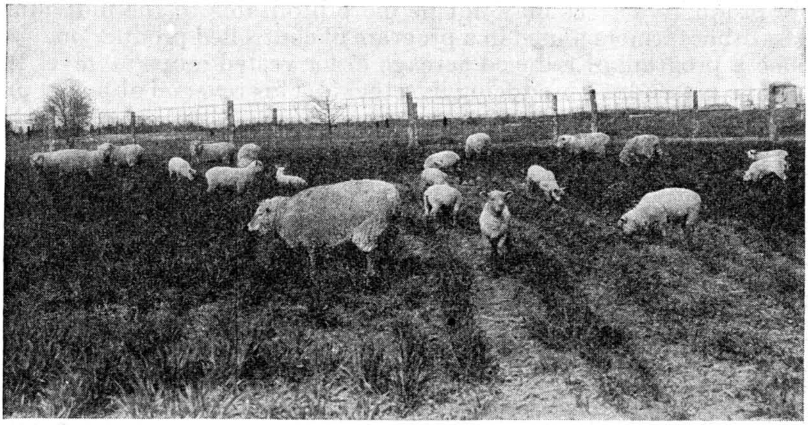

FIGURE 71.—Ewes and their lambs grazing on a temporary pasture of rye sown early in the fall. Such pastures are valuable for extending the grazing season and shortening the winter-feeding period.

plan the rotation accordingly. Temporary pastures produce more, afford greater protection against livestock parasites, fit into rotations readily, and distribute the benefits of grazing animals more uniformly over the whole farm. On the other hand, such pastures require much more labor and seed than permanent pastures, are not so effective in controlling erosion, and are somewhat less dependable than permanent pasture since there is always the risk of not getting a good stand. Generally, it is advisable to have both permanent and temporary pastures. The permanent pasture should furnish most of the grazing, and the temporary one should be such, with respect to size, kind, and time of seeding, that it furnishes plenty of grazing while the permanent pasture is dormant (figs. 71 and 72).

In the Northern States cereals and Italian ryegrass supplement permanent pasture in the spring and fall, while Sudan grass, first-year sweetclover, and lespedeza do the same in midsummer. In the South, vetch, crimson clover, and other legumes as well as cereals lengthen the grazing season in the spring and fall. Southern pastures are not commonly dormant in midsummer.

For permanent pastures, the land most subject to erosion should be selected. Such land is most likely to have a spring or running water for the stock. Although the land may not always be conveniently located to the farmstead, it is better to build a lane for the stock to use in going to and from the pasture than to crop the rougher land while more level land near the farmstead is in pasture. If such lanes are made from 4 to 6 rods wide, they are much less likely to be barren, weedy, and gullied than if narrow. With a wide lane, one can drive different places to avoid forming deep ruts which favor severe erosion. Another advantage is that fences will need less repair along a wide lane. A lane 4 rods wide and a quarter mile long occupies only 2 acres.

Pastures Reduce Erosion

Taking land out of a rotation of cultivated crops and seeding it to pasture affords an excellent opportunity to stop most of the erosion and gullying which may have been taking place. Rolling land which has a porous subsoil may be level-terraced so that practically all the water which falls is held until it soaks in. These level terraces can be made readily by plowing a furrow and back-furrowing along the contour lines at intervals of from 2 to 3 feet on steep slopes and from 10 to

FIGURE 72.—Beef cattle grazing on Korean lespedeza. This crop, when seeded in small grain in the spring, supplies excellent grazing in July, August, and early September, when bluegrass is short.

12 feet on gentle slopes. Such terraces, which readily become sodded over, not only reduce erosion but increase the moisture content of the soil and aid in keeping the pasture from becoming dormant in dry weather.

On many farms, particularly those of the single-cash-crop areas, such as the Cotton Belt, the establishment of pastures will make it possible to keep a cow or two for milk and to cut down considerably on the feed that must be purchased for the work stock. With the keeping of cows and the use of pasture, new ventures in many cases, it will be advisable to stock up gradually and allow a big margin of pasture and roughage in order to provide plenty of grazing and winter feed. It is well to plan to have at least 5 acres of pasture and 2 or 3 acres of hay for each cow. An excess growth of pasturage the first year makes for a better sod and a more productive pasture.

In the case of farms with several tenants operating on a small scale, one large pasture on which all can keep their cows—or one herd furnishing all with meat and milk—is likely to be much more satisfactory and economical than a separate pasture for each family's cow. Providing similarly for the mules or other work stock should cut the annual cash outlay for feed fully one third in cases where all feed has been purchased.

On livestock farms, where most of the land has been in harvested crops which have been used for fattening feeder stock, the increased acreage of pasture should result in the keeping of more breeding stock or the purchase of feeders at an earlier age. This will necessitate carrying the feeders longer and permitting the use of pasturage in the process.

Creep-feeding may be practiced on good pastures where a single location for shade, water, or both makes it rather certain that the calves will make use of the creep freely. Otherwise, if extra feeding is desired it is usually better to separate the calves and allow them to nurse twice daily. These practices of feeding on pasture mean much in maintaining soil fertility when contrasted with the too common practice of dry-lot feeding on some slope or hillside where most of the fertilizing value of the manure never reaches the cultivated fields.

In order to get the most from pastures with hogs and sheep, parasite problems must be dealt with. If permanent pastures are used by hogs, at least two pastures should be available so that they may be changed from one to another each year. Temporary pastures used only 1 year meet the need for clean pastures in raising hogs. Rotating temporary or permanent pastures will help in controlling parasites of sheep, but drenching is usually necessary to prevent losses on pastures of high carrying capacity. With a few sheep, such as 15 to 20 head, and a farm of several hundred acres the flock may be moved about so as to avoid serious infestation.

Such changes in the farm should result in reduced requirements for labor and equipment, cheaper and more effective maintenance of soil fertility, the production of lighter cuts of meat, and less lard and tallow. The long-time accomplishment should be better returns on account of cheaper production and a reduction of the supply to meet the market needs, provided farmers in general adhere to a program of controlled production.

E. W. Sheets and A. T. Semple,
Bureau of Animal Industry.

PASTURES Reduce Cost of Producing Livestock and Increase Profits

Pastures if adequate will provide during the grazing season all the roughage that can be profitably utilized by the livestock kept on the farm. The length of the practicable grazing season will depend upon the climate; in the extreme South this period may be year-long; in the North it will vary from 4 to 6 months. Often during the period when weather conditions are such that animals may be outdoors the permanent pastures are more or less unproductive, and some supplemental pasture or supplemental feed, either grain or hay, must be provided during these periods of low production.

Adequate pasturage may be assured by an extensive grazing area or by high production on a limited area (fig. 73). High production may be obtained by the application of fertilizers, the use of better adapted pasture plants, and proper grazing methods.

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Meat-Production Costs

In the past the production of beef has centered very largely in the open ranges of the Western States. There, because of the free use or low rental charges of grazing lands, enormous numbers of cattle were produced at low cost, even though it required in some cases 50 acres to support one animal unit for the grazing season of 6 to 9 months. A recent survey of the production costs of range cattle in Nevada shows a long-time average for mixed cattle of 4.36 cents a pound where the ranches were well managed. This, however, allowed for no interest on the investment. Since but little feeding is done in the range country, no direct comparison of this with other methods is possible.

A survey over a period of 5 years of 478 Corn Belt farms engaged in the production of beef calves indicated that the breeding cows were

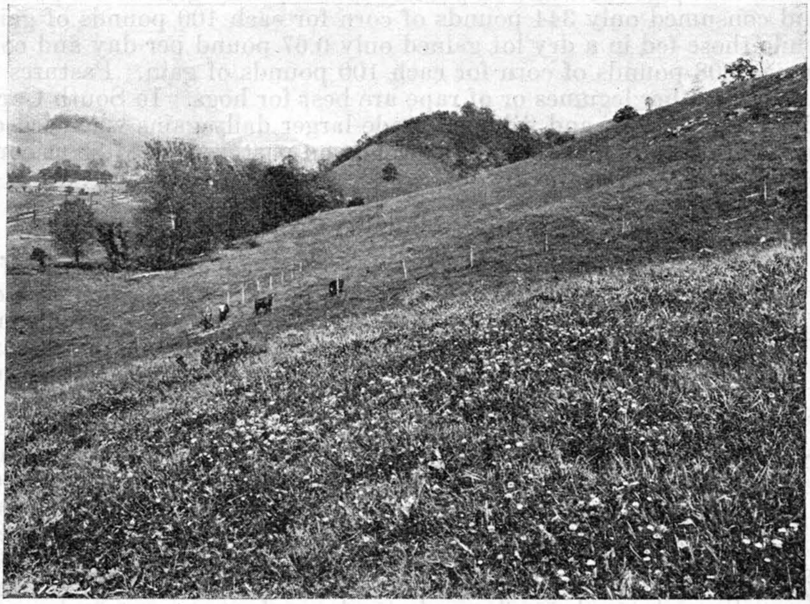

FIGURE 73.—One of the pastures in southwest Virginia famous for its production of beef cattle. Note how well erosion is controlled on these steep hillsides.

obtaining all of their feed from pastures for an average of 200 days per year at a cost of 4.25 cents a day. During the remaining 165 days when they were maintained on harvested feed the cost was 9.5 cents a day.

At Beltsville, Md., yearling steers with an average initial weight of 556 pounds were grazed at the rate of one head per acre and made an average daily gain of 1.42 pounds for a period of 146 days. This resulted in an average gain of 212 pounds per acre over a period of 5 years, including the drought year of 1930, when the year's gain was less than half the average. No grain or other supplemental feed was given these steers while on the pasture. The cost of the meat thus produced, including an annual pro rata charge for fertilizers, lime, fencing, seed, and seed-bed preparation, and interest and taxes on land valued at $50 an acre, was only 3.35 cents a pound. These gains were produced on excellent pasture, the annual cost approximating $7.10

an acre, and only 2 of the 5 years were favorable from the standpoint of rainfall distribution.

Results at both the Mississippi and the Purdue (Indiana) Agricultural Experiment Stations show that if lambs produced on good pasture alone are slaughtered at 4 to 5 months of age they are approximately equal in size and quality to those given a grain supplement in addition to the pasturage.

Experiments at Ardmore, S.Dak., conducted by the Bureau of Animal Industry, indicate that hogs on good pasture such as alfalfa require about 10 percent less of concentrates per pound of gain and that the need for tankage is reduced one third. A recent survey by the Illinois College of Agriculture of 43 farms shows that proper methods of swine sanitation involving the use of clean pastures not only produced healthy pigs but saved 11 percent of the feed. In Ohio it was found that pigs fed while on pasture made a daily gain of 1.2 pounds and consumed only 344 pounds of corn for each 100 pounds of gain, while those fed in a dry lot gained only 0.67 pound per day and consumed 508 pounds of corn for each 100 pounds of gain. Pastures of alfalfa or other legumes or of rape are best for hogs. In South Carolina hogs fed corn and fishmeal made larger daily gains when fed on soybean pasture, and the profit per hog on pasture was $1.86 as compared with $1.25 in the dry lot.

Milk-Production Costs

Farm surveys in six counties of New York covering a period of 3 years showed that the daily expense for feed while the cows were on pasture was 9.7 cents and while in the barn 38 cents. In a survey of land utilization in southern Indiana in 1929 it was found that pasture furnished feed at one fourth the cost of harvested feed. Notwithstanding the fact that these were poor pastures requiring an average of 3.4 acres per head to carry a mature cow for the 6-month grazing season, the average cost of pasturing a cow was 5.57 cents a day.

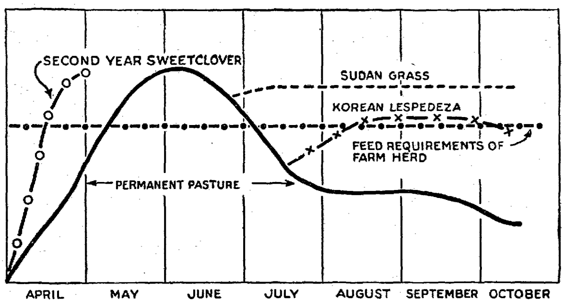

FIGURE 74.—A normal production curve of permanent pastures in the Corn Belt, illustrating the use of supplemental pastures to lengthen the grazing season and provide sufficient feed for the farm livestock from April 15 to October 14. Either Sudan grass, Korean lespedeza, or soybeans may be used in late summer and fall. The sweetclover should be grown in a rotation with corn and wheat. The first-year crop should be harvested for hay; and the second-year growth, after being pastured in the spring, may be plowed under May 1 in preparation for planting corn.

In Oregon on irrigated pastures of ladino clover, where the carrying capacity was 3 cows per acre instead of 3 acres per cow as in southern Indiana, the cost per acre of pasture was much higher, and supplemental feed, both grain and hay, was given to the cows while they were on pasture. The feed cost (pasture plus supplements) per 100 pounds of milk produced was 91 cents, as compared with a feed cost of $1.20 per hundredweight of milk in the barn. The net return from the pasture was $41.01 per acre.

These are only a few of the many results that demonstrate the usefulness of pastures in the production of meat and milk. If, then, ample pastures tend to reduce the cost of livestock products and increase farm profits, it is obvious that more pasture and more attention to methods of lengthening the grazing season are justified. The farm survey in southern Indiana plainly indicates that, under present conditions, farms that are half in pasture and half in cultivated crops are more profitable than those with only one fourth their area devoted to pastures. The application of reasonable quantities of fertilizer will increase the productiveness of pastures, and the use of supplemental pastures, as shown in figure 74, will extend the period during which farm livestock may obtain their feed requirements by grazing. Both methods are worthy of full consideration as measures of relief from the present depression in agriculture.

H. N. VINALL and M. A. HEIN,
Bureau of Plant Industry.

PATTERN of Real Estate Values Less Changed Than Level of Values Farm real estate derives its value from its capacity to yield goods or services which command a price. Generally speaking, such values are high where the value of the per acre yield is relatively high, and low where the converse is true. A relatively high value of acre yield may result from high physical productivity, from an especially favorable location with respect to market, or from some combination of the two. In the United States the development and interplay of physical and economic factors over a long period have resulted in a more or less definite pattern of farm real estate values.

This generalized pattern is evident in figure 75, in which each county is shaded according to the average value per acre of such agricultural land as it may contain. The areas of high value per acre are concentrated principally in the Middle West, in certain parts of the Pacific coast, in Florida, and along the Atlantic coast of the Middle Atlantic and southern New England States. Isolated areas appear also in the neighborhood of many of the principal cities.

The general pattern in 1930 was similar to those of 1925, 1920, and even 1910, even though the average level of values fluctuated drastically from period to period. The average value per acre of farm land and buildings the country over was $39.60 in 1910, $69.38 in 1920, $53.52 in 1925, and $48.52 in 1930, according to the Bureau of the Census. Since 1930, land values in nearly every agricultural region have declined drastically. These changes in levels have been due primarily to economic factors, principally changing prices, whereas the general pattern of values, which has remained more constant, had its origin, to a large extent, in physical differences of productivity and location with respect to markets.

Although the pattern of values the country over has remained somewhat the same, there has been considerable variation in the relative change between areas from time to time. In other words, the pattern, though it has retained the same general outlines, has changed in practically all its details. For example, the average value of farm land in the Corn Belt has been higher than that in the Cotton Belt for many years, but the changes in values from year to year or from decade to decade have been far from equal. Even within areas, changes have not been uniform.

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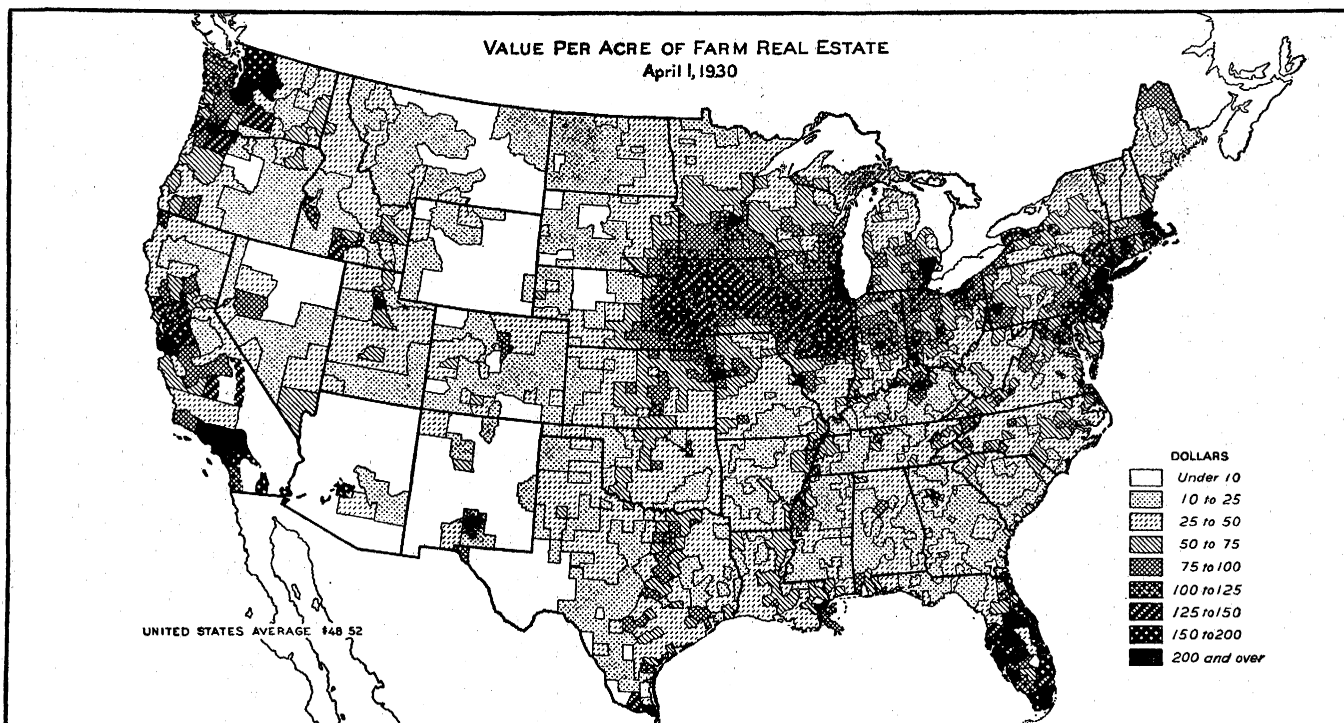

FIGURE 75.—Areas of high value per acre are found along the southern coast of the North Atlantic States, near large cities, in the Corn Belt, in fertile valleys, and in other areas especially favored by local circumstances. Large areas of low-priced land are found in the Mountain States. Between these two extremes is great variation, depending upon the combination of physical and economic factors peculiar to each locality.

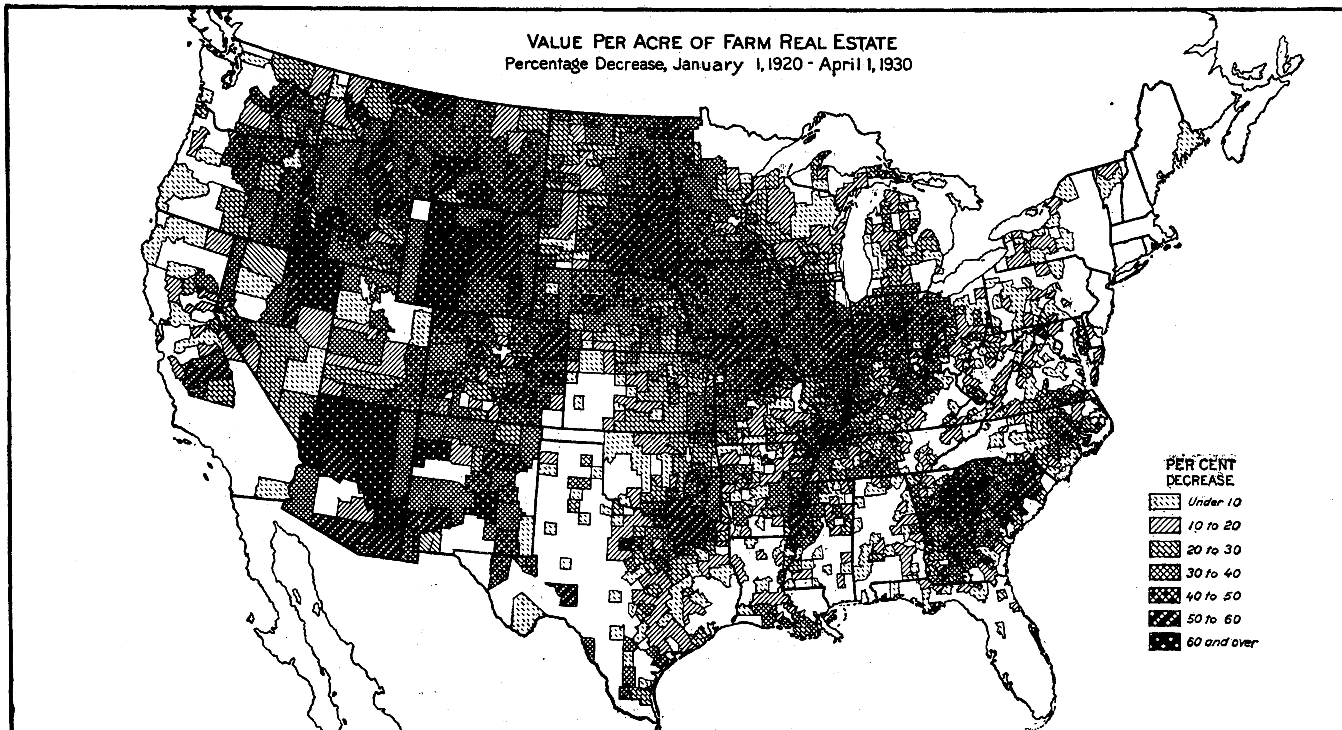

FIGURE 76.—Although farm real estate values in 1930 in general were lower than in 1920, the changes were far from uniform. There were significant differences between geographic areas, even within States, as well as between farms of different size and different value.

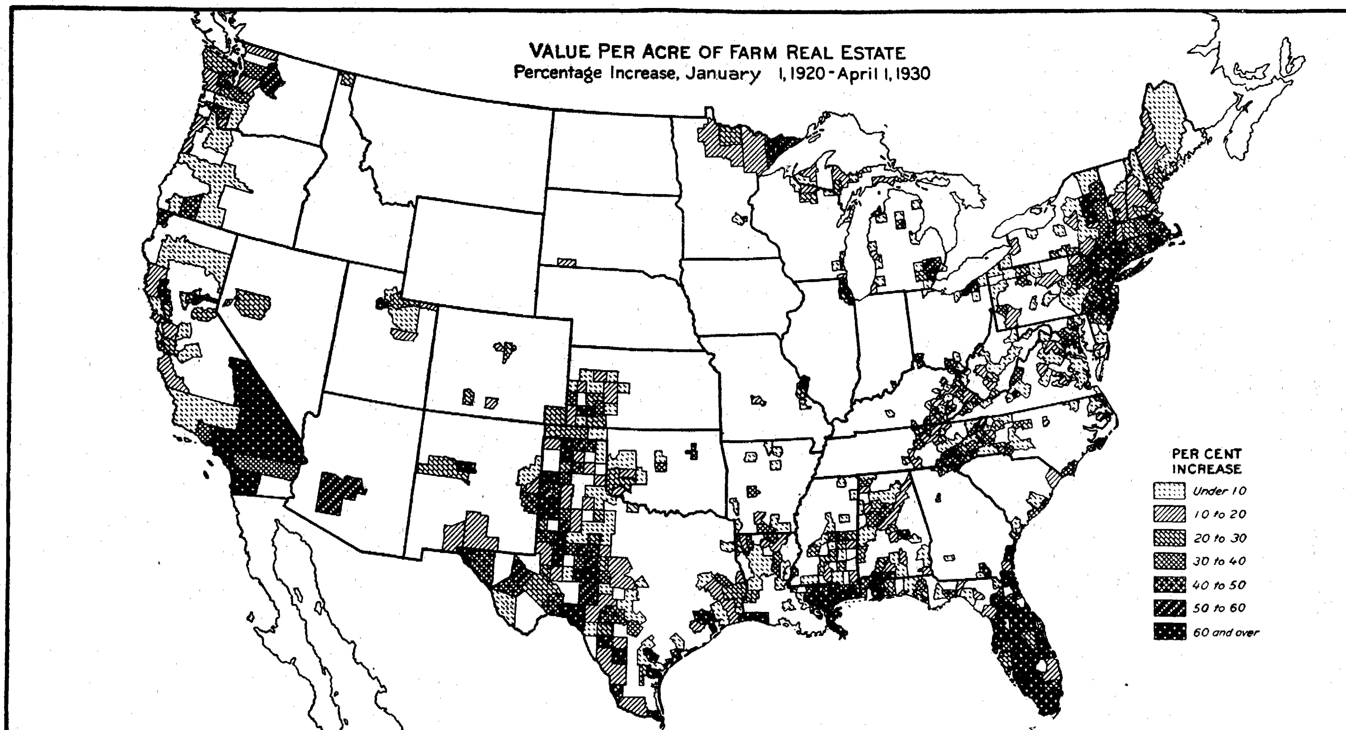

FIGURE 77.—Although the trend of farm real estate values was in general downward from 1920 to 1930, there were limited areas where values apparently increased. Shifts in farming areas, the influence of growing cities, and the development of new irrigation areas are among the local factors having significant effects upon land values.

Certain of these differences are readily apparent if the relative changes in value between two periods are compared, as, for illustration, in figures 76 and 77, where each county has been shaded according to the relative change in value in its real estate between January 1, 1920. and April 1, 1930.

Variations From Main Trend, 1920–30

As is generally recognized, the decade 1920–30 on the whole was a trying one for agriculture. The average value per acre of all farm real estate was roughly one third lower at the end of the decade than at the beginning. Yet there were substantial areas in which average farm real estate values were higher in 1930 than in 1920. The predominant trend was evidently decidedly downward, but substantial sections of New England and other Eastern seaboard States, parts of the Pacific coast, and of the South, particularly western Texas, as well as several other scattered areas, experienced increasing values.

In the North Atlantic States, the important factors involved are generally recognized, namely a concentrated and growing market for food products, expanding suburban residential areas, increasing emphasis upon specialty crops, and abandonment of lower grade and inaccessible farms.

In western Texas, Oklahoma, and Kansas, the transition from a less intensive to a more intensive use, through the expansion of wheat and cotton to the parts of these areas to which they are respectively adapted, has been largely responsible for the higher average values there.

The higher acre values in Louisiana, Mississippi, and Alabama are probably partly nominal, the result of certain changes that were made in the procedure of the census enumeration. It is probable, however, that part of the differences in the average value of real estate indicated by the census between Mississippi and Alabama, on the one hand, and Georgia and South Carolina, on the other, has real significance. High prices, the bollweevil, and depression, appeared in what was apparently a more unfortunate sequence than occurred farther west.

Several more-or-less isolated areas of increasing values appear in the neighborhood of several of the larger cities throughout the country. Adjacency to large cities means that farm land in the neighborhood is subjected to the combined influences of expanding suburban or residential areas, expanding requirements for industrial or commercial sites, as well as to the increasing opportunity for producing for a specialized, highly concentrated local market.

In the vicinity of the larger cities there is thus a combination of both agricultural and nonagricultural factors tending toward higher values. The more direct effects of nonagricultural factors may perhaps be more easily seen by considering separately on the one hand the average value of farm land in those counties parts of which are included in the metropolitan areas as described by the census, and on the other, average values in the other counties.

Although much land in the vicinity of cities is farmed, and enumerated by the census as land in farms, it is often held at values considerably in excess of its value for strictly agricultural purposes, because owners anticipate appreciation on account of possible residential or industrial use.

In nearly every State in which there were metropolitan areas as defined by the census, the average value of farm real estate was greater in those counties which lay partly or entirely within a metropolitan area, than in those counties lying wholly without such an area. In most instances, the differences were considerable. Except in the Northeastern States, however, the area of farm land in the metropolitan areas was so small, relative to the State total, that its exclusion usually made only a few dollars' difference in the State average, but in most States of the Northeast as far west as Ohio and as far south as Maryland, exclusion of such farm land reduced the State average appreciably.

Differences in Rate of Change of Values

More significant, however, are the differences in the rate of change of values. The decade 1910 to 1920 was one of rapid increase in average value in practically all regions. In many States, particularly in the Middle West and South, farm real estate in counties wholly outside metropolitan areas increased more rapidly in value than in other counties.

The next decade, as is well known, was unfavorable to agriculture, and in nearly all areas land valued for agricultural purposes declined in value far more than that in the vicinity of cities. In fact, value per acre of farm real estate in many of the counties lying partially within metropolitan areas increased markedly during the decade.

In Ohio the increase in average value per acre of all farm real estate from 1910 to 1930 was about 15 percent, but excluding counties on the basis indicated, the average increase of the remainder of the State was only 7 percent. In Indiana exclusion of the counties indicated alters the average change from a decrease of 4 percent to a decrease of 6 percent. In Michigan the average change is reduced from an increase of 42 percent to 33 percent, and in California it is changed from an increase of 116 percent to an increase of 98 percent.

In Wisconsin, and in most of the West North Central, Southern, and Western States, the differences in relative change are of less importance.

Farms of Different Sizes Unequally Affected

Not only do changing economic conditions bring about different results in different localities, but they also affect unequally farms of different sizes within the same general area. Farms very much larger than the typical farm usually differ in essential features of their organization from the typical farm. They are likely, therefore, to be affected by economic changes to a different degree, or even in a different direction, than the typical farm. Small farms, for example, often tend toward the truck or poultry type, whereas large farms often tend more toward livestock enterprises. Obviously, since prices of different groups of farm products do not usually change together, and since considerable shifts in farm organization cannot usually be accomplished at once, it may be expected that in general value of farms of different sizes will change at different rates.

For the United States as a whole the average value per acre of farm land and buildings, as reported by the census, increased 75 percent from 1910 to 1920, and then decreased 30 percent during the following decade, leaving a net increase of 23 percent over the 20 years. For farms under 20 acres in size, however, the net change for the period was an 85 percent increase, and for farms of 1,000 acres or over, the net increase was only 3 percent.

If the average size of farm may be considered as the typical farm, it may be said that in general terms the typical farm apparently experienced greater relative increases in value from 1910 to 1920 than did the other sizes, and experienced decreases about in proportion to all farms in the following decade, making the net increase from 1910 to 1930 somewhat greater than the average of all farms.

Averages for the whole United States are highly generalized. A better, but not altogether satisfactory, unit for consideration consists of the customary geographic division, but even here generalization is difficult.

Small Farms Fared Better than Average

One statement can be made definitely. Small farms appear to have fared better than the average. In every geographic division there has been, for farms under 20 acres in size, a net increase in value per acre from 1910 to 1930. In no area has the increase for all farm land been so great as for the small farms, and in one area (the Mountain States) the average for all farms has decreased, partly by reason of the inclusion in farms of more low-grade land in the later period.

With the exception of the very small farms, there appears to be a tendency in the North Central States for the size groups that increased most in the boom years to have decreased most in the readjustment period. It cannot be said, however, that these groups fell lower, relative to 1910, than the groups that experienced small increases.

Not only have there been differences in the relative changes in values for different-sized farms, but there have also been differences between counties of high and of low average value per acre, even within geographic divisions. A classification of counties on the basis of their average value per acre of farm real estate in 1910, and a comparison of the relative changes in value for several periods reveal certain interesting relations.

The summary for the United States indicates that, with the exception of the few counties in which farm real estate was valued at over $150 per acre in 1910, the lower valued lands have increased more, relative to their 1910 value, than have the higher valued lands. Thus, in counties where real estate was valued at less than $10 per acre in 1910, values have a little more than doubled during the 20 years, whereas, for higher valued lands the relative increases were progressively smaller (with one exception). However, a 100-percent increase on $10 land is only $10, whereas a 30-percent increase on $100 land is $30, or three times as great. Hence, although the lands with lower initial value increased the most relatively, the absolute increases were in general greater for the medium and higher priced lands.

Counties reporting values of $200 or more per acre in 1910 were so located that they cannot be considered as reflecting predominantly the effects of agricultural factors. In fact, practically all of the counties in the group either contained sizable cities or constituted the outlying part of a large metropolitan area. For purposes of the present discussion, this group can be ruled out as not representative of typical agricultural conditions.

Variation Among Size Groups

Considerable variation was evident from one size group to another, and from one area to another. In several of the geographic divisions, as for the United States as a whole, the counties with the lowest valued real estate increased in value more, relatively, than have the other groups. Land valued at less than $10 per acre in 1910 frequently was land in a low stage of development. The addition of improvements and the fact that an increase of only a few dollars constituted a large percent increase when the base is less than $10, probably mainly explain these large increases.

Excepting the extreme high- and low-value groups, there appears to be a tendency in certain areas, and with certain exceptions, for the groups that experienced the greatest relative increases from 1910 to 1920 to have fallen the most from 1920 to 1930.

In the East North Central States, for example, the $125-to-$200-per-acre farms increased more than most other groups, fell further on an average, and ended the 20-year period considerably lower relative to the 1910 value, than was the case with the other groups.

In the West North Central States the $50-to-$125-per-acre farms, as a rule, increased more, subsequently declined further, and ended the 20 years lower, relative to their value in 1910, than did most of the other groups. In the South Atlantic region the $10-to-$75-per-acre farms rose more rapidly in value. Over the 1910-to-1930 period, however, these groups showed a smaller increase in value than did the average of all counties in these States. A somewhat similar situation is indicated in the East South Central section, but does not appear so clearly in the West South Central. In the latter group particularly, the more valuable farm land appears to have experienced the least relative increase in value.

These generalizations refer to regions, and not to individual farms. The distinction is significant, for a change in the enumerated acreage within a region may alter the average for a region even though the value of individual farms undergoes no change.

The variations that have been cited serve to illustrate the fact that a change in average value per acre for the country as a whole merely represents the sum total of the currents and cross currents that affect the various localities making up the whole. Accordingly, a national or regional average may be reasonably interpreted only as a measure of net effect, in a certain sense, but not as an accurate reflection of situations in particular localities.

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Bureau of Agricultural Economics.

PINK-BOLLWORM Outbreak Fought by Destroying Wild Cotton in Florida

The wild cotton of Florida is a true *Gossypium*, the stalks, leaves, blooms, and bolls having all the general appearance of cultivated cotton. The bolls are very small, usually with three locks, the lint being very short and of no commercial value. It is very probably a native of this locality, and sometimes makes good-sized trees, some reaching a height and limb spread of 15 to 20 feet, with a diameter of 4 to 6 inches. Because of the tropical climate the plants fruit almost continuously.

The southern end of Florida is in general a very low-lying country, the highest points being only a few feet above sea level. Near the coast the land becomes imperceptibly lower, and offers very poor drainage, which condition results in numerous islands surrounded by shalreal estate increased in value more, relatively, than have the other groups. Land valued at less than $10 per acre in 1910 frequently was land in a low stage of development. The addition of improvements and the fact that an increase of only a few dollars constituted a large percent increase when the base is less than $10, probably mainly explain these large increases.

Excepting the extreme high- and low-value groups, there appears to be a tendency in certain areas, and with certain exceptions, for the groups that experienced the greatest relative increases from 1910 to 1920 to have fallen the most from 1920 to 1930.

In the East North Central States, for example, the $125-to-$200-per-acre farms increased more than most other groups, fell further on an average, and ended the 20-year period considerably lower relative to the 1910 value, than was the case with the other groups.

In the West North Central States the $50-to-$125-per-acre farms, as a rule, increased more, subsequently declined further, and ended the 20 years lower, relative to their value in 1910, than did most of the other groups. In the South Atlantic region the $10-to-$75-per-acre farms rose more rapidly in value. Over the 1910-to-1930 period, however, these groups showed a smaller increase in value than did the average of all counties in these States. A somewhat similar situation is indicated in the East South Central section, but does not appear so clearly in the West South Central. In the latter group particularly, the more valuable farm land appears to have experienced the least relative increase in value.

These generalizations refer to regions, and not to individual farms. The distinction is significant, for a change in the enumerated acreage within a region may alter the average for a region even though the value of individual farms undergoes no change.

The variations that have been cited serve to illustrate the fact that a change in average value per acre for the country as a whole merely represents the sum total of the currents and cross currents that affect the various localities making up the whole. Accordingly, a national or regional average may be reasonably interpreted only as a measure of net effect, in a certain sense, but not as an accurate reflection of situations in particular localities.

B. R. STAUBER,
Bureau of Agricultural Economics.

PINK-BOLLWORM Outbreak Fought by Destroying Wild Cotton in Florida

The wild cotton of Florida is a true *Gossypium*, the stalks, leaves, blooms, and bolls having all the general appearance of cultivated cotton. The bolls are very small, usually with three locks, the lint being very short and of no commercial value. It is very probably a native of this locality, and sometimes makes good-sized trees, some reaching a height and limb spread of 15 to 20 feet, with a diameter of 4 to 6 inches. Because of the tropical climate the plants fruit almost continuously.

The southern end of Florida is in general a very low-lying country, the highest points being only a few feet above sea level. Near the coast the land becomes imperceptibly lower, and offers very poor drainage, which condition results in numerous islands surrounded by shallow water, many parts of them being covered during high tide. In the main these islands (or keys, as they are called in Florida), as well as the mainland, are covered with an almost impenetrable growth of subtropical plants, so that in order to get through these jungles it is oftentimes necessary to cut one's way with a machete.

Wild cotton in its natural state has only been found on the keys and near the coast on the mainland. As a rule there is a heavy growth of mangroves along the edge of the keys and mainland, and cotton, if present, usually occurs in a strip between the mangroves and the hammocks, which are composed of a dense growth of various plants. Many of the keys seem to have been inhabited in past ages by Indians who are thought to have made the numerous oyster-shell mounds which occur. Cotton oftentimes grows on these shell mounds.

The pink bollworm was discovered in southern Florida in June 1932, the initial infestation being located in small plots of cultivated cotton totaling approximately 2 acres, at the United States Plant Introduction Gardens at Chapman Field, near Miami. It was soon found that the wild cotton was generally infested. This wild cotton was found to extend from Miami to Key West, being most abundant from a point some 70 miles below Miami to the southern end of Lower Matecumbe Key, a distance of 25 to 30 miles. All of the cotton in this strip was infested. A considerable amount of infested wild cotton was also found on the mainland, near Flamingo, on Cape Sable.

The eradication of the infestation at Chapman Field was a comparatively simple matter; however, the wild cotton presented a much more serious problem. Its general distribution and the degree of infestation had not been determined; consequently it was not known at that time whether or not it would be physically possible to eradicate all of it from the State. It was perfectly evident, however, that it would be practicable to destroy all of that growing along the highways and in other easily accessible places so as to eliminate any danger of tourists or other travelers distributing the insect to new localities. This work was immediately begun, and was soon completed to the extent that one could pass through the area without finding any wild cotton unless at special pains to look for it.

Distribution of Wild Cotton

The next step was to conduct a thorough survey to determine as accurately as possible the exact distribution of the wild cotton; also, the extent of infestation. In making part of this survey it was necessary to charter a cabin launch to reach long stretches of inaccessible coastlines and numerous keys where considerable open water had to be crossed. A portable boat outfit consisting of a 12-foot skiff with outboard motor and trailer was used to advantage in less exposed locations. On the east coast the only wild cotton found above Miami consisted of four small colonies near the town of Grant, in Brevard County. On the west coast it occurred rather generally on the mainland and adjacent keys from Cape Sable northward to St. Petersburg. Only one small colony was located above this point on a small key near Hudson, in Pasco County. In no case was wild cotton found growing any great distance from the coast. This left a distance of only 150 miles between wild cotton and the commercial plantings of northern Florida. Sufficient inspecting was done to determine the fact that a considerable part of this wild cotton along the west coast was infested, the most northerly being on Terra Ceia Island, in Manatee County. On the east coast only one infestation was found above Miami, this being on dooryard cotton plants at Lake Worth, in Palm Beach County. The survey indicated that it would be possible and practicable to eradicate the wild cotton from southern Florida and adjacent keys.

There are in general two seasons in southern Florida. In the late spring, summer, and early fall comes the wet season, and in the winter and early spring occurs the dry season. During all parts of the wet season much of the land is covered with water, and the areas are seriously infested with mosquitoes, which makes work practically impossible. Because of this condition the eradication was not begun until the latter part of November 1932. The experience gathered while eradicating plants from the roadside in the early summer demonstrated that it was necessary to remove all of the roots; otherwise they would put out sprouts. It was therefore necessary to go over the area which had previously been cleaned to remove these sprout plants and also seedlings, which had come up in the meantime. By "seedling" plants is meant those up to the size of walking canes; plants any larger than this are considered mature. All of the wild cotton on the east coast was removed.

On the west coast it was evident that it would be impossible to go over the entire area before the rainy season set in; therefore the area from Naples northward was cleaned. This increased the distance between commercial plantings and the wild cotton by 150 miles, making a total separation of some 300 miles. All of the accessible cotton on Cape Sable was also removed, together with much of that in the more inaccessible locations.

During this eradication campaign some 625,000 mature, 816,000 seedling, and 19,000 sprout plants were destroyed. Many wild and domestic cotton plants are grown in yards as ornamentals, and these have also been destroyed. With only 1 or 2 exceptions the owners very readily agreed to have such plants destroyed after the danger had been explained to them. It is planned to resume this eradication campaign during the next dry season.

Experiments with Chemicals

In connection with the program some preliminary experiments were carried on to determine the feasibility of killing wild cotton with chemicals. Sodium arsenite solution seemed to give the best results. Where this solution was sprayed on the plants, however, they merely shed their leaves and began putting out new growth. In other cases the solution was poured around the base and roots of the plant, but they were not killed unless the base of the plant was bruised in some manner before the solution was applied. Further experiments are necessary in this connection before any definite conclusions can be reached.

A number of difficulties have been experienced in this work. On account of the locations in which wild cotton grows, it was often necessary to work many miles from a base of supplies. For example, in the Cape Sable clean-up all supplies, including drinking water, had to be hauled for a distance of over 40 miles, part of which was over very bad roads. Of course, boats had to be used to reach the keys, and even so, it was necessary for the men to wade considerable distances in many cases. There were also insects to contend with, especially mosquitoes, and occasionally poisonous plants. Rattlesnakes are very numerous in that part of the State, and almost every day during the clean-up one or more were killed. In spite of all these difficulties the work progressed especially well. There is still considerable wild cotton in the more isolated localities to be destroyed; however, the work done thus far indicates that it will be possible and practicable to eradicate wild cotton in southern Florida, and thereby eliminate the present pink-bollworm outbreak there and prevent the establishment of new infestations on the keys and along the coast.

R. E. McDONALD, *Bureau of Plant Quarantine.*

PLANT Breeders Make Progress in Developing Disease-Resistant Corn

Quality in corn is evaluated generally in commercial channels by the application of the Federal grain standards. Corn meeting the requirements for grades No. 1 and No. 2, and sometimes No. 3, is considered high in quality. Corn grading No. 5, No. 6, and Sample is usually acknowledged to be low in quality.

The two most important single factors in determining numerical grade or commercial quality at the present time are moisture and total damage. During the 9-year period 1923–24 to 1931–32, according to data gathered by the Bureau of Agricultural Economics from supervised inspections of corn receipts at all inspection points in the United States—

> approximately 33 percent of the market receipts of the average crop of corn had their grade determined as lower than grade No. 1 because of the factor "total damage" under the present official standards.[8]

The ear and kernel-rot diseases (fig. 78) are very largely responsible for the damaged corn referred to in the grade factor "total damage." These diseases are also known as the "dry rots" of corn. Most lots of market corn carry a considerable quantity of slightly diseased kernels that are not sufficiently rotted to be classed as damaged. When such lots of corn have a rather high moisture content, the amount of badly rotted and damaged corn increases rapidly in storage and transit. Other things being equal, lots of corn comparatively free from these dry-rot infections are likely to retain their grade and quality much better in storage and transit than lots of corn that carry a high percentage of such infections, even though the infections may not be sufficiently developed to cause the corn to be classed as damaged.

Completely rotted ears that are left in the field or thrown out at the dump have little or no value. They subtract from the yield and add to the cost of production. Ears from plants weakened by disease are very likely to be chaffy or light in weight. When corn harvesting is delayed on account of unfavorable weather, the amount of partly rotted and weather-damaged corn from down and broken stalks frequently increases to a point where the feeding value and keeping qualities are materially lowered. Thus, the corn-disease problem is directly concerned with both the quality of corn marketed and that used on the farm.

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[8] UNITED STATES DEPARTMENT OF AGRICULTURE, BUREAU OF AGRICULTURAL ECONOMICS. PROPOSED REVISED FEDERAL GRAIN STANDARDS, INCLUDING EXPLANATIONS. U.S. Dept. Agr. Misc. Pub. 173: 82. 1933.

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Developing Disease-Resistant Strains

The most effective method that has been found for controlling diseases that lower the quality of corn is the development and use of disease-resistant hybrid strains resulting from the crossing of disease-

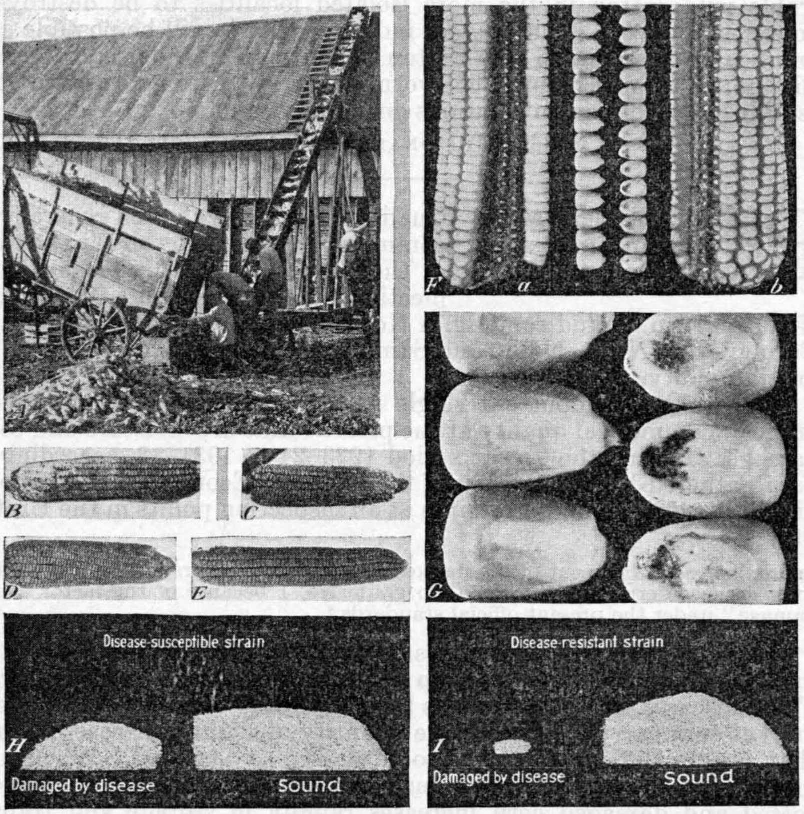

FIGURE 78.—*A*, Unloading corn by a horse-driven dump. Conspicuously rotted ears are being thrown out to improve the keeping quality of the corn in the crib. If such ears were allowed to go into the crib they might cause much additional damage during storage, thus lowering the market grade and feeding value of the corn.
B and *C*, Ears badly rotted by Diplodia, one of the most important of the dry-rot diseases.
D and *E*, Chaffy ears. The same fungus that causes Diplodia ear rot also causes Diplodia stalk rot. Plants with stalks badly rotted prior to maturity frequently produce chaffy ears and corn inferior in quality.
F, *a*, Sound ear; *b*, an ear apparently sound as judged by outside appearances, but heavily infected with *Diplodia*. These inconspicuous infections often develop in disease-susceptible strains during a period of warm, wet weather following maturity and prior to the time the corn is harvested. They also may develop in storage in the crib. The grain from such ears materially lowers the grade and quality of the corn for market purposes as well as for feeding livestock on the farm.
G, Enlargement of kernels from the two ears pictured in *F*.
H and *I*, Shelled grain from a disease-susceptible and from a disease-resistant hybrid strain of corn, respectively, harvested near the end of the corn-harvesting period, the middle of December (1932), following a prolonged period of weather unfavorable for corn harvesting. During this period approximately 20 percent of the grain in several disease-susceptible strains was damaged by disease, similar to that shown on the right in *G*. Under the same conditions, less than 2 percent of the grain of the disease-resistant strains was damaged. The total yields of the two groups of hybrid strains were practically the same but the difference in quality was very marked.

resistant inbred lines. The expression of disease resistance in corn is influenced by a number of conditions, such as crop rotation, soil fertility, drought and heat injury in the summer, cold injury in the fall, and insect injury. Moreover, disease-resistant strains, to be useful, must also have other desirable qualities combined with their disease resistance, especially the capacity to produce a satisfactory yield of well-matured grain on stalks that stand up well until the corn is harvested.

Complicated as the problem of developing disease-resistant strains for different sections is, very encouraging progress has been made by a number of workers throughout the Corn Belt. It seems reasonable, therefore, in the light of what has been accomplished in the last few years, to predict that within the not-far-distant future strains of corn that combine disease resistance with other necessary and desirable qualities will be developed and made available for distribution.

J. R. HOLBERT, *Bureau of Plant Industry.*

PLANT-DISEASE Control Important in Efforts to Regulate Production The cornerstone of an effectively planned utilization of our agricultural land is adequate control of production. A common reason for overplanting is the chance that one will make money by someone else's failure. Overplanting too often results in overproduction and disaster. On the other hand, with certain crops, yields and prices have fluctuated so greatly that even a crop from poor land occasionally proved profitable. But for these occasional profits such "speculative planting" would largely cease, and many such submarginal lands would be voluntarily withdrawn from cultivation.

An important factor in the fluctuation of agricultural crops is the loss from plant disease. Crop losses from plant diseases vary greatly and are as yet almost unpredictable. For example, losses from brown rot in Georgia peaches dropped from 40 percent in 1920 to 15 percent in 1921 and to 5 percent in 1922. In 1927 the loss was estimated at 20 percent, and in 1929 it was back to 5 percent. In 1932 downy mildew of tobacco, which had been observed in this country only twice before, proved so serious in Georgia as to reduce markedly both acreage and production. In 1933 this disease appeared for the first time west of the Appalachians and caused serious losses in eastern Tennessee. In the Northeastern States a bacterial wilt of sweet corn has proved increasingly serious during the last 3 years. In 1932 it caused greater losses in this region than at any time since its discovery on Long Island 35 years ago and materially reduced the supply of early sweet corn available over important marketing areas in New York, New Jersey, Pennsylvania, and the States west of this group. So severe was it in Connecticut in 1933 that in the "emergency gardens" tilled by the unemployed the sweet corn was a total failure.

Such losses are of great, sometimes tragic, importance to the individual. From the standpoint of the agricultural industry as a whole, however, and from the standpoint of effective land utilization, losses from plant diseases are more important because of their fluctuation than because of their absolute size.

Disease Control Needed to Reduce Costs

Once the cause of a disease is thoroughly understood and a commercial control worked out and regularly practiced, it ceases to be so great a factor in crop fluctuation. This, then, is the end toward which the work of State and Federal students of plant diseases is now tending; not to control diseases in order that larger total crops may be produced, but to control them so completely that crops can be produced more ance, especially the capacity to produce a satisfactory yield of well-matured grain on stalks that stand up well until the corn is harvested.

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Future development should greatly increase the importance of plant-disease information to land utilization. When it is possible by careful surveys to determine those areas in which diseases are likely to be particularly troublesome, it will then be possible to prevent many disastrous experiments in growing new crops as well as ill-advised attempts at settlement.

NEIL E. STEVENS, *Bureau of Plant Industry.*

PLANT Shipments Freed From Diseases and Pests by New Methods Sterilizing and disinfecting treatments are applied to plants and plant products under quarantine regulation in order that they may move from areas or countries where particular fungus or insect pests are known to be present to other regions without danger of spreading such pests. This eliminates the risk of pest dispersal and at the same time provides for the natural commercial movement of the commodity. The necessity for such treatments was early recognized in the administration of Federal plant quarantines and numerous methods of treatment for various pests have been authorized and applied to plant products. With the progress of research work on pest control, it is possible to modify these treatments and develop new processes which are more economical or more efficient or interfere less with the commercial movement of the regulated products.

An infestation of the Mediterranean fruit fly in Florida discovered in the spring of 1929 and found to be rather widespread over the citrus region of the State made necessary the application of some treatment to the 1929–30 crop if it were to move without danger of dispersing this pest. Tests by the Bureau of Entomology indicated that the larvae and eggs of the Mediterranean fruit fly could be destroyed within the fruit by heating it to a temperature of 110° F. and holding it at that temperature for 8 hours. It was also shown that such treatment could be applied to citrus fruit grown in Florida without injury. A treatment was then developed which consisted in heating the fruit contained in field boxes in a specially designed room by means of hot, moist air applied in large volume. By this method, the fruit could be heated uniformly throughout the room without danger of overheating. The treatment could be applied to 40,000 pounds of fruit in a single room in a period of 14 to 16 hours, allowing 6 to 8 hours to heat the fruit to 110°, and a holding period of 8 hours at that temperature. About 5,000 carloads of citrus fruit which were from within the regulated area but were not known to be infested by this insect were sterilized by this process, the fruit moving to its normal markets without danger of dispersing the pest.

This method of treatment was also applied with success to avocados in Florida. A similar method has since been developed by the Bureau of Entomology for the treatment of narcissus bulbs infested with bulb flies. The treatment might be applied to a number of other perishable commodities where the thermal death point of the pest is lower than the temperature at which the commodity will be injured.

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Sterilization By Refrigeration

Refrigeration was also employed in the sterilization of citrus fruit to eliminate the possibility of disseminating the Mediterranean fruit fly. It was determined by the Bureau of Entomology that holding fruit at a temperature of 30°–31° F. for 15 days seemed to insure the death of eggs and larvae of this pest. As this temperature was only slightly lower than the cold-storage temperature at which the fruit will keep best for the longest period, it was found to be well adapted to this work. The treatment was applied commercially to some 500 carloads of citrus fruit from Florida at the end of the shipping season, thus combining sterilization with the storage of the fruit for later markets.

The method has since been applied to citrus fruit from the lower Rio Grande Valley of Texas following an infestation of Mexican fruit fly to insure freedom of the fruit from this insect. Two hundred and fourteen carloads were treated in this case. The treatment is applicable to many other types of fruit and vegetables, as well as nonliving plant products which are not injured by temperatures below that necessary to destroy the insect pest which may be infesting them. These two methods of treatment for fruit flies have been employed only as additional safeguards for the treatment of fruit exposed to infestation and were not used for treatment of fruit known to have been subject to fruit-fly attack.

Shipments of green beans from the area heavily infested with the Japanese beetle when the adult beetle is numerous are very liable to be infested with these insects and inasmuch as long-distance shipments are made they may carry the beetle well outside the infested area and result in establishing new infestations. A machine for freeing the beans from these insects was developed which consisted of two drums of wire mesh, one within the other, the inner drum being about 20 inches in diameter and 10 feet long, supported in an inclined position by a shaft through the axis and suitable braces. The drums are open at both ends, the beans are fed into the upper end through a suitable hopper, and as the drums are rotated they progress to the lower end, where they are caught in hampers. The beetles are shaken out of the beans and fall through the wire mesh to the ground. The machine is much more effective than hand-inspection and cheaper, costing only about 1 cent per bushel for operation, and having a capacity of about 1 bushel per minute.

Pressure Method for Killing Pink Bollworm

The elimination of the pink bollworm from cotton lint and linters is a problem of first importance in the prevention of spread of the pink bollworm. These commodities when produced in infested areas were formerly fumigated under vacuum with hydrocyanic acid at the cost of about $1.50 per bale. It was found, however, that a pressure of 2,000 pounds per square inch in a mass of cotton would crush all seed contained therein sufficiently to kill any pink-bollworm larvae that might be present. It was determined also that such pressure was developed in a commercial compress and that cotton from the lightly infested area could be shipped after such treatment with little or no danger of transporting a live insect. This method was therefore authorized for all cotton except that grown in areas where the infestation was heaviest.

Further work showed that by passing the cotton in the form of a bat between heavy steel rollers held together by heavy springs just before it entered the press box and as part of the ginning operations, the same results could be accomplished. That is, sufficient pressure was applied to the cotton to crush any seed which might be therein and destroy any pink bollworm. This process had the advantage of being applied at little added cost, the operating cost being estimated at about 1 cent per bale. By this method, all the cotton was subjected to a uniformly high pressure, and the entire bale was free from possible infestation when it left the gin press. It was thus possible without decreasing the effectiveness of the treatment to substitute in certain areas a process which cost 1 cent per bale for application for one which had cost $1.50 per bale.

A method of sterilizing cottonseed for planting, in which the seed, preheated by steam, was held for 1 hour at 145° F. in a steam-jacketed container, was developed. The apparatus was designed to operate continuously with a capacity of about 8 tons of seed per day. Careful tests showed that this treatment would sterilize seed without injuring the viability. This made possible the shipment of special varieties of cottonseed from the lightly infested area for planting, and made this seed available over a wider area, thereby benefiting the producer in that he received a higher price for his seed.

The object in this work is to make the treatments as simple and economical as possible, reduce interference with the commercial movement of the commodity to a minimum, and, at the same time, prevent the spread of the pest against which the regulations are directed.

LON A. HAWKINS, *Bureau of Plant Quarantine.*

PORK of Good Quality Grown Efficiently on Corn-Soybean Ration

Rapid expansion in the production of soybeans during the last decade has led to increased utilization of the crop in feeding livestock. Because of its high protein content, the soybean has become popular as a supplement to corn and other starchy feeds in the production of hogs. This often makes unnecessary the purchase of concentrated protein feeds. Soybeans contain about 36 percent of protein and vary in oil content from 12.7 to 20.5 percent depending upon the variety, the more common varieties used in hog feed averaging approximately 18 percent. Because of their high oil content, soybeans fed in large quantities produce soft or oily carcasses of unsatisfactory market quality. Another consideration in feeding soybeans is their deficiency in certain mineral elements; hence hog rations containing soybeans should include a good mineral mixture.

Rations of Corn and Soybeans

In cooperation with the Purdue (Ind.) University Agricultural Experiment Station, the Department has conducted a series of tests to determine the maximum proportion of soybeans that may be fed to hogs with corn without serious detriment to the quality of carcass. The plan of this series of experiments provided for a study of the effect of mixtures of ground corn and ground soybeans when fed to fattening hogs in the proportions 3:1, 6:1, 9:1, and 12:1, as compared with the effect, on a control lot, of a mixture of corn and tankage in the proportion of 12:1. The Purdue investigators also used another lot in which

Further work showed that by passing the cotton in the form of a bat between heavy steel rollers held together by heavy springs just before it entered the press box and as part of the ginning operations, the same results could be accomplished. That is, sufficient pressure was applied to the cotton to crush any seed which might be therein and destroy any pink bollworm. This process had the advantage of being applied at little added cost, the operating cost being estimated at about 1 cent per bale. By this method, all the cotton was subjected to a uniformly high pressure, and the entire bale was free from possible infestation when it left the gin press. It was thus possible without decreasing the effectiveness of the treatment to substitute in certain areas a process which cost 1 cent per bale for application for one which had cost $1.50 per bale.

A method of sterilizing cottonseed for planting, in which the seed, preheated by steam, was held for 1 hour at 145° F. in a steam-jacketed container, was developed. The apparatus was designed to operate continuously with a capacity of about 8 tons of seed per day. Careful tests showed that this treatment would sterilize seed without injuring the viability. This made possible the shipment of special varieties of cottonseed from the lightly infested area for planting, and made this seed available over a wider area, thereby benefiting the producer in that he received a higher price for his seed.

The object in this work is to make the treatments as simple and economical as possible, reduce interference with the commercial movement of the commodity to a minimum, and, at the same time, prevent the spread of the pest against which the regulations are directed.

LON A. HAWKINS, *Bureau of Plant Quarantine.*

PORK of Good Quality Grown Efficiently on Corn-Soybean Ration

Rapid expansion in the production of soybeans during the last decade has led to increased utilization of the crop in feeding livestock. Because of its high protein content, the soybean has become popular as a supplement to corn and other starchy feeds in the production of hogs. This often makes unnecessary the purchase of concentrated protein feeds. Soybeans contain about 36 percent of protein and vary in oil content from 12.7 to 20.5 percent depending upon the variety, the more common varieties used in hog feed averaging approximately 18 percent. Because of their high oil content, soybeans fed in large quantities produce soft or oily carcasses of unsatisfactory market quality. Another consideration in feeding soybeans is their deficiency in certain mineral elements; hence hog rations containing soybeans should include a good mineral mixture.

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The Manchu variety of soybeans was fed in the Indiana experiments, whereas the Virginia variety was fed in the Department experiments, which were conducted at the United States Animal Husbandry Experiment Farm, Beltsville, Md. Three experiments were conducted at Purdue and two at Beltsville. All hogs were slaughtered and carcass observations made at Beltsville. The carcass-grading committee was composed of 3 members, 1 representing the Bureau of Animal Industry, United States Department of Agriculture; 1 representing the State agricultural experiment stations cooperating with the Bureau in soft-pork investigations; and 1 representing the Institute of American Meat Packers. In all the experiments the mixtures of ground corn and ground soybeans were self-fed, free choice, in dry lot, with mineral mixture. The mineral mixture was composed of 10 parts wood ashes, 10 parts 16-percent superphosphate, and 1 part common salt. The hogs also had access to pressed block salt. The principal results of these experiments are shown in summarized form in table 6.

TABLE 6.—*Summary of data from hogs fed various rations in dry lot*

Ration and proportion	Hogs fed	Period of feeding	Average weight		Average gain		Feed per 100 pounds gain	Average grading of carcass for firmness
			Initial	Final	Total	Daily		
Corn and soybeans:	*Number*	*Days*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	
3:1	38	77	115	222	107	1.39	468	Soft.
6:1	46	87	113	232	119	1.38	477	Medium soft.
9:1	47	83	113	231	118	1.42	444	Do.
12:1	37	87	118	236	118	1.36	501	Medium hard.
Corn, soybeans, and tankage:								
12:1:1/3	17	65	124	240	116	1.77	458	Do.
Corn and tankage:								
12:1	45	72	116	242	126	1.76	435	Hard.

In all cases the gain produced on the corn-soybean ration averaged over 100 pounds, with a variation in the finished weight of the hogs ranging from 205 to 243 pounds as the lot average.

Feed Consumption and Carcass Quality

From the standpoint of feed consumption per 100 pounds of gain the results were consistent at the two stations in favor of the 9:1 ration, when soybeans made up the sole protein supplement. The 12:1 ration was consistently the high-cost ration at both stations, an average of about 57 pounds more feed per 100 pounds of gain being consumed with this ration than with the 9:1 combination. The addition of one third part tankage to the 12:1 ration not only increased the rate of gain, but the pigs required on an average about 43 pounds less feed per 100 pounds of gain than with the straight 12:1 mixture. In no instance, however, did any of the feed combinations at either station equal in efficiency, so far as low feed consumption per 100 pounds of gain was concerned, the feed utilization of the control lots receiving corn and tankage in the proportion of 12:1.

The conclusion reached by the investigators in consultation with other specialists cooperating in the soft-pork investigations were as follows:[9]

[9] Agricultural experiment stations of the following States have cooperated with the Department in soft-pork investigations and in the interpretation of results: Alabama, Arkansas, Georgia, Kentucky, Mississippi, North Carolina, Ohio, Oklahoma, Pennsylvania, Indiana (Purdue), South Carolina, Tennessee, Texas, and Virginia. The Institute of American Meat Packers has also cooperated.

Hogs with initial weights up to 130 pounds, when fed a corn-soybean ration in the ratio of 3:1, will not usually produce firm carcasses if slaughtered after a gain of approximately 100 pounds or more has been made on this ration. Only 8 percent were in the medium-hard class, the remainder being medium soft or soft.

Thirty-six percent of the carcasses of hogs fed the 6:1 corn-soybean ration were firm (hard or medium hard). However, heavier hogs having initial weights of 115 pounds or more and gaining at least 1.5 pounds per day when fed for a period of 10 weeks or longer usually produce firm carcasses.

Approximately 50 percent of the carcasses of the hogs fed the 9:1 corn-soybean ration were firm, whereas 65 percent of the carcasses of those fed the 12:1 ration were firm. With these two rations also, the heavier, faster gaining pigs normally produced firm carcasses. When one third part tankage was added to the 12:1 ration, 88 percent of the carcasses were firm, whereas 91 percent of the carcasses of the control group fed the 12:1 corn and tankage rations were firm.

From these results it appears that initial weight, ration, and rate of gain are important factors that influence firmness in the carcass. In general, hogs well grown on nonsoftening feeds to a weight of approximately 115 pounds or more and making subsequent gains of approximately 100 pounds on a corn-soybean ration with gains of 1.5 pounds or more daily, produce firm carcasses when the proportion of soybeans in the ration is not greater than 1 part of soybeans to 6 parts of corn. Of the corn-soybean rations, the 9:1 combination produced the most economical gain.

J. H. Zeller, and O. G. Hankins,
Bureau of Animal Industry.

POTATO Losses in Handling Reduced by Simple Equipment

In the Aroostook area of Maine, the bulk of the potatoes grown must be stored either on the farm or at the trackside, because the existing transportation facilities cannot handle more than a tenth of the crop during the harvest season. Current harvesting and handling methods in that area cause injuries to potatoes averaging about as shown in table 7. The minor bruises prior to storage, affecting about 40 percent of the potatoes harvested, result in grade injuries in storage amounting to 3 percent of the crop stored. Respiration of the potatoes in storage causes a loss of about 5 percent.

Table 7.—*Injuries to potatoes caused by harvesting and handling methods, in Aroostook County, Maine* [1]

Operation	Grade injury	Minor injury	Total injury
	Percent	*Percent*	*Percent*
Digging	2.15	16.16	18.31
Picking into baskets	.36	1.86	2.22
Emptying into barrels	1.94	6.22	8.16
Placing in storage	2.65	16.47	19.12
Moving to grader	1.14	12.13	13.27
Grading	1.75	18.48	20.23
Bagging or barreling	4.41	5.65	10.06
Total	14.40	76.97	91.37

[1] Prepared by William E. Schrumpf, Maine Agricultural Experiment Station.

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The grade injuries that occur up to the time the potatoes pass over the picking table, including the increase in injuries caused by storing potatoes with minor injuries, amount to about 13 percent of the total. These should all be removed as the potatoes pass over the table, but the potatoes injured as they drop into bag or barrel will show up only in the market or the kitchen, and while they may not cause an immediate loss to the shipper, they will cause a prejudice against the brand of potatoes he ships, and are thus more serious than the injuries that occur before weighing and selling.

Mechanical Digging Reduces Damage

Mechanical diggers cause fewer injuries than digging by hand. Digger injuries can be reduced by running the continuous-elevator type of digger low at the rear end, and by padding the tines and projections of the shaker-elevator type of digger. Plenty of dirt carried up over the elevator will reduce bruises with either type. The practice of digging every other row of potatoes allows the pickers time to pick up before the digger makes the second trip over, thus saving the potatoes which roll down between the rows and would be in the path of the horses and the digger wheels.

Picking potatoes into baskets of the split-wood variety causes less injury than picking them into metal baskets. The data in table 7 are for potatoes picked into split-wood baskets.

In the Aroostook area practically all of the potatoes are hauled from the field in 11- and 12-peck stave or veneer barrels, and about 2 percent of them are injured in grade when dumped into the barrels. Many farmers have reduced this injury by padding the rims and bottoms with burlap. Barrels are also used in taking potatoes from basement bins, farm storage, and sometimes bins on the same floor, to the grader; and from the grader to the car when potatoes are being shipped in bulk. Since relatively few barrels are used for these purposes it would be profitable to pad the rims, lower sides, and bottoms with sponge rubber.

About half of the potatoes stored in the Aroostook area are dumped from barrels from a "rolling plank", and the other half from barrels through scuttle holes. Much injury is caused by allowing the rolling plank to rest directly upon the potatoes, but the rolling plank may be supported by cross members resting on cleats nailed to the bin wall without injury to the potatoes. After the bins are half full, the rolling planks are removed, and the potatoes are elevated to the floor above the bin and dumped through scuttles. The pile is first built up to the mid point of the ceiling by dumping through a twisted sack chute supported at the scuttle by being nailed to a wood frame or by being sewed to an old tire casing. After the pile is built to the level of the scuttle the sack chute is removed and the potatoes are then dumped through the padded scuttles. Padding around the scuttles helps to prevent bruises.

Rope-Bottomed Hopper

An objection to dumping through scuttles, in addition to the bruising of tubers, is that a pyramid or a wedge of very dirty potatoes is built up under the scuttle holes. Ventilation of this dense mass is difficult, and a good deal of sprouting and rotting results. To correct this condition a large percentage of farm-stored potatoes are run over a slatted wooden rack or hopper before being dropped through the scuttle. In this way often 5 percent of the harvest is removed in the form of dirt, rocks, and small potatoes; but such racks increase the grade injuries by about 1 percent. To obtain the advantages of the cleaning hopper without its disadvantages, a rope-bottomed hopper was built (fig. 79) consisting of a 2- by 4-inch frame over which ⅜-inch rope is stretched three quarters of an inch apart on centers. At the ends of the hopper the rope is bent around ⅜- by 2-inch iron pins driven 1½ inches into drill holes in the edges of the cross members. The rope is continuous, and slack is taken up at the ends. This hopper was used in connection with a trough-bottomed conveyor (fig. 80) to handle 3,000 barrels of potatoes in the fall of 1933, and over 100 barrels of dirt, rocks, and small potatoes were removed. Very little bruising occurred when this equipment was used.

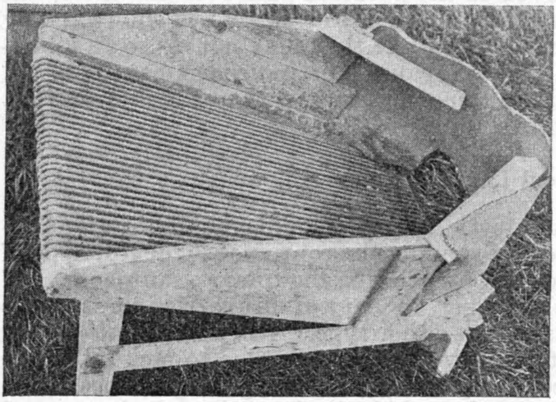

FIGURE 79.—Rope-bottom hopper for freeing potatoes of loose dirt before storage.

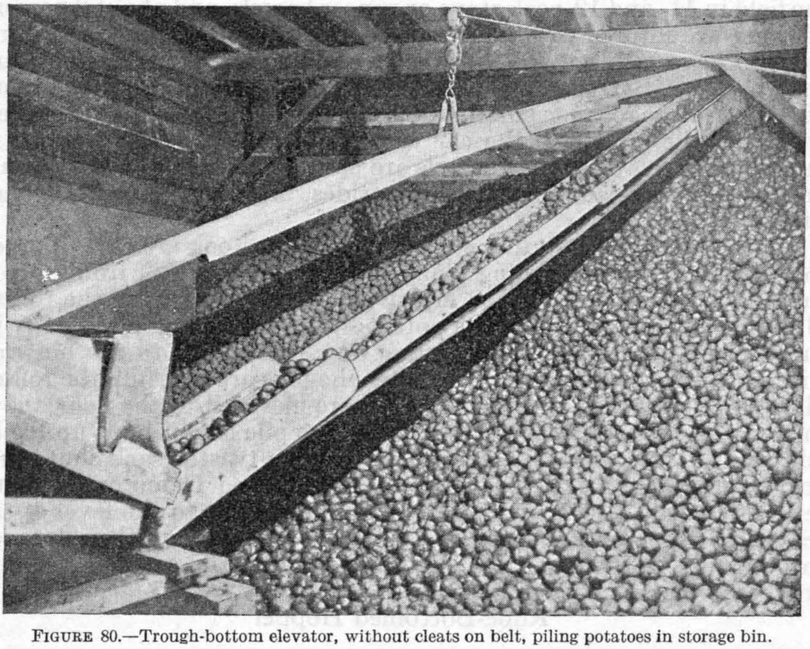

FIGURE 80.—Trough-bottom elevator, without cleats on belt, piling potatoes in storage bin.

Cleated canvas conveyors for piling potatoes are on the market, but they are not popular because they are heavy and hard to move around, and bruising is increased by the cleats as they pass through a filled hopper. The conveyor shown in figure 81 was designed to overcome the disadvantages of the cleated conveyor and of the usual hand methods of dumping through scuttles and from planks. This conveyor worked very satisfactorily in storing the 3,000 barrels mentioned above. It is 18 feet long, and delivered 8 feet higher than the receiving end when a continuous stream of potatoes was fed from the rope hopper. By raising the lower end 2 feet above the floor, potatoes were stored to a depth of 10 feet. A ½-horsepower electric motor, washing machine reduction unit, and 16-inch canvas conveyor belt were used.

The conveyor shown in figure 81 was designed for taking potatoes from the bin and elevating them on to the first grading belt of a grader. It consists of two flights and one continuous conveyor belt. The lower flight is horizontal and fits into a 16-inch by 8-inch conveyor trench that runs the length of the bin; the upper flight elevates the potatoes

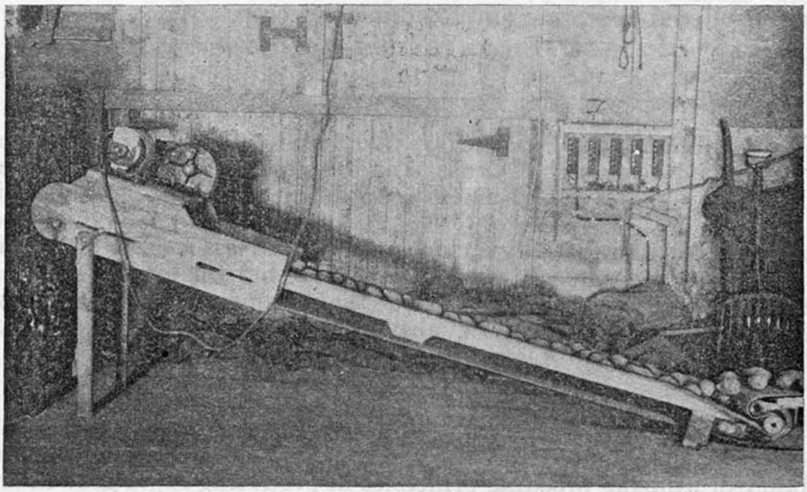

FIGURE 81.—Conveyor elevator for unloading potatoes from storage bin to grader. (Only one end of horizontal flight is shown, at right.)

on to the belt of the grader. The conveyor trench, like those used in corncribs, has a cover of slats which are removed one at a time as the potatoes cease to run down. The same motor, drive, and belt were used as for the elevator described above. This conveyor was used with a small lot of potatoes in the spring of 1933, and handled them with less bruising than usually occurs with potato forks. Bruising caused by the type of potato fork shown in figure 81 can be reduced by placing old sprayer hose over the back one third of the tines.

Reducing Injury by Graders

Graders cause but little more injury than the usual operation of moving potatoes to the grader hopper, but the average grade injury of about 2 percent may be reduced by padding ramps between runs of conveyor belt and grading chain, and such corners as the moving potatoes might hit. Keeping the grader in adjustment and repair is equally important in preventing grader injury. The greatest injury in grading potatoes occurs in dropping from the grader into the barrels or sacks. The resulting grade injury is about 4 percent, and these injured potatoes are not picked out but go to market, as already noted. Barrels may be padded. When the potatoes are shipped in sacks the most common method of preventing injury is to pad the floor heavily under the bag holder. Another common method is to tie up the bottom until the sack is partly filled, to decrease the drop of the first potatoes. Investigators are experimenting with tilting supports for sacks and barrels to reduce the injury from this source.

In all steps in the handling, it has been found, the temperature of the potatoes affects the amount of injury suffered. If the potatoes have a temperature of 50° F. or above, appreciable less bruising results than when they are handled at lower temperatures. In a storage house one bin may be warmed without affecting the others, by blowing warm air from the main alley into the conveyor trench of the bin to be warmed. This is not the least important means, from the standpoint of either effectiveness or economy, that is suggested for reducing the losses commonly suffered in storing and handling this crop.

A. D. Edgar, *Bureau of Agricultural Engineering.*

POULTRY Meat Production Costs Reduced by Cross-Breeding and Good Diets

The production of poultry meat and the control of its quality may well begin with breeding for rapid rate of growth and good quality of carcass. The more rapidly a chicken grows the less it costs to raise it. Not only is less feed eaten per pound of gain, but the bird can be marketed at an earlier age. It is also true that the meat of the faster growing chicks is usually of better quality. Once suitable chicks have been obtained, the chief problems are those of management and feeding.

Breeding for Rapid Growth and Quality

Only within recent years has much thought been given to the possibility of utilizing breeding principles in producing rapid growth and high market quality in chickens. One means of doing this is to crossbreed. Several crosses have been tried which seem to have a beneficial effect on rapidity of growth and quality of meat at least up to 10 or 12 weeks of age, although the results have not been adequately verified. These crosses are as follows: Rhode Island Red and White Wyandotte; Rhode Island Red and Light Sussex; Rhode Island Red and Barred Plymouth Rock; and Dark Cornish and Barred Plymouth Rock.

Crosses of the White Leghorn with some of the heavy breeds have produced results that were not so desirable. They are: White Leghorn and Barred Plymouth Rock; White Leghorn and Rhode Island Red; White Leghorn and White Wyandotte; and White Leghorn and Jersey Black Giant.

It is noteworthy that the sex of the chicks resulting from all the crosses of the first group may be ascertained at hatching time by the color of their down. However, practically all the crosses of the second group have no definite indications of the differences between sexes of the day-old chicks.

In the crossbreeding studies carried on at the United States Animal Husbandry Experiment Farm, Beltsville, Md., the cockerels from sulting grade injury is about 4 percent, and these injured potatoes are not picked out but go to market, as already noted. Barrels may be padded. When the potatoes are shipped in sacks the most common method of preventing injury is to pad the floor heavily under the bag holder. Another common method is to tie up the bottom until the sack is partly filled, to decrease the drop of the first potatoes. Investigators are experimenting with tilting supports for sacks and barrels to reduce the injury from this source.

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In the crossbreeding studies carried on at the United States Animal Husbandry Experiment Farm, Beltsville, Md., the cockerels from crosses of Single-Comb Rhode Island Red males with White Wyandotte and with Light Sussex females showed a rate of growth and quality of meat superior to those of the other crossbred stock, as judged from the finished carcasses at 12 weeks of age. The females were held for other experimental work.

Of the purebred cockerels at 12 weeks of age, the Rhode Island Reds were the heaviest and had the best carcasses; the Light Sussex were next in weight, and the White Wyandottes weighed the least, the last two breeds averaging about the same in quality. The Rhode Island Red males were approximately 16 percent heavier on an average than the White Wyandottes, and the carcasses 8 percent higher in quality. In the crosses of the Rhode Island Red with both the Light Sussex and the White Wyandotte the progeny were heavier and, on an average, about 20 percent better in quality than the best of the pure breeds. This work is being continued in order to verify the results.

It is believed that in the standard breeds used in making these crosses continued selection and breeding will aid materially in producing individuals much superior in rapidity of growth and quality of meat.

Management and Quality of Diet Important

When feeding is contemplated with the idea of reducing the costs of production, it is likely to be unsuccessful unless considerable attention is given to the quality of the diet and to management, particularly sanitation. Cheap diets do not lead to lowered costs of production if they are of poor quality. Management is a problem which each individual must work out to suit his own conditions.

When young chicks are raised on good range, such as bluegrass or alfalfa, they do not require so much of the more expensive protein supplements as when raised on a poor range, bare lot, or in confinement. The ideal range is one that is well drained, either naturally or artificially, and has a good stand of bluegrass or one of the legumes such as alfalfa.

When plenty of skim milk or buttermilk is available, young stock on good range will make economical gains and produce a good quality of carcass on a low-cost diet made up of ground corn and all the milk they can drink. If it is necessary to purchase milk in some processed form, it can seldom be fed freely without considerably increasing the cost of the diet. In this case a suggested economical mash consists of 90 pounds of ground corn, 5 pounds of dried milk, and 5 pounds of a good-quality meat product. Economical gains and good growth have been obtained, at Beltsville, on a diet of corn meal and buttermilk when the chickens were raised in good-sized yards containing growing green feed.

When the quality of the range is poor it is best to use a mash mixture of 68 pounds of corn, 10 of wheat bran, 10 of wheat middlings, 5 of dried milk, 5 of good-quality meat product, and 2 of ground oyster shell or high-grade limestone. In any case, the chicks should receive 1 pint of cod-liver oil with each 100 pounds of mash for the short periods that they are confined in the brooder house before being allowed access to free range and direct sunlight. The simple diets should be used only when supplemented with range.

Using range to supplement the diet is highly advantageous and reduces cost of production. If it is necessary to raise the young stock in confinement, the generous use of high-quality protein concentrates is economical. Considerable attention must be given to all the ingredients used in a complex diet, or severe losses may result from heavy mortality, poor growth, and nutritional perosis (leg weakness).

A complex diet that has given good results, at Beltsville, when fed to chicks raised in confinement is composed of 40 pounds of ground corn, 15 of ground wheat, 10 of good-quality meat product, 10 of oatmeal, 6 of rice bran, 5 of dried milk, either skim milk or buttermilk, 5 of fish meal, 5 of alfalfa-leaf meal, 3 of ground oyster shell or high-quality limestone, and 1 of salt, plus 2 pounds of cod-liver oil. If rice bran is not available it may be replaced by 15 pounds of ground oats.

Three Classes of Marketable Chickens

When chickens have reached the market stage they can usually be divided into three classes. The first class is made up of those individuals that are of good weight and have well-filled-out bodies. Such birds are already in good finish and should be marketed without attempting to improve them by fattening. The second class comprises those individuals that have well-developed frames carrying relatively little meat. These birds will make fair gains, and the fattening process will change the quality of their carcasses from the lower to the higher grades. The third class is made up of the remaining birds. Most birds in this class, if wormed, will respond remarkably well with extra gains and improvement in quality when fattened.

With a little experience it is relatively easy to decide just how long a group of birds should be kept on the fattening diet. In general, the younger the birds the longer they can be fattened profitably, but it is not economical to keep fattening birds in batteries and on feed longer than 2 weeks.

Complex feed mixtures are not necessary for the finishing of market poultry, especially when plenty of milk is available at low cost. When milk costs are high, reasonably good results can be obtained by using somewhat more complex mixtures containing soybean meal and some meat product in place of milk.

Two of the most commonly used diets for fattening are ground oats mixed with milk, and equal parts of ground oats and ground corn mixed with milk. The former mixture produces good gains and excellent "bloom" of carcass. The latter usually gives as good gains as the former and is somewhat cheaper. Both of these fattening diets have been used with good results in fattening tests carried on at the Department's farm at Beltsville. A mixture, with water, of equal parts of soybean meal and a good-quality meat product may be used with fair results to replace milk in a fattening diet.

Improper killing and dressing of a prime market bird will cause it to be placed in a much lower grade. Therefore, in order to obtain extra-fine quality table poultry, dry picking seems to be essential, though very good results may be obtained also by the proper use of the semiscald method.

It is evident that there is a possibility of increasing profits in raising chickens not only by a greater rate of growth and reduction in costs, but also by increasing the market value through better quality of the carcass. One of the best means of accomplishing these results is the use of proper breed crosses. Rapid growth and a high quality of meat depend also on careful coordination of feeding and management.

C. W. Knox and H. W. Titus,
Bureau of Animal Industry.

PREDATOR-TRAP Device Safeguards Species That Are Harmless

In setting traps for predatory animals trappers frequently capture individuals of species other than those for which the sets were intended. The force of trappers engaged in predatory-animal control work under the supervision of the Bureau of Biological Survey are under strict instructions to avoid the trapping of such fur bearers as minks, martens, foxes, and weasels and other animals unless locally detrimental to livestock, game, and poultry production. Birds, rabbits, and prairie dogs, ground squirrels, woodchucks, and other rodents may spring traps set in ideal sites for coyotes and wolves. This not only results in unnecessary destruction of innocent wild life but prevents capture of the larger predatory animals. It also tends to arouse their suspicion, thus making them trap shy, and ruins the chance of capturing an animal that perhaps has destroyed thousands of dollars' worth of livestock during its marauding career. Hunters will lose much valuable time, and their efficiency will be greatly decreased in areas where such trap interference is common, unless the traps can be so adjusted as not to be sprung by valuable or harmless small mammals or birds. Many devices have been developed to safeguard the smaller creatures and to prevent their interfering with the traps.

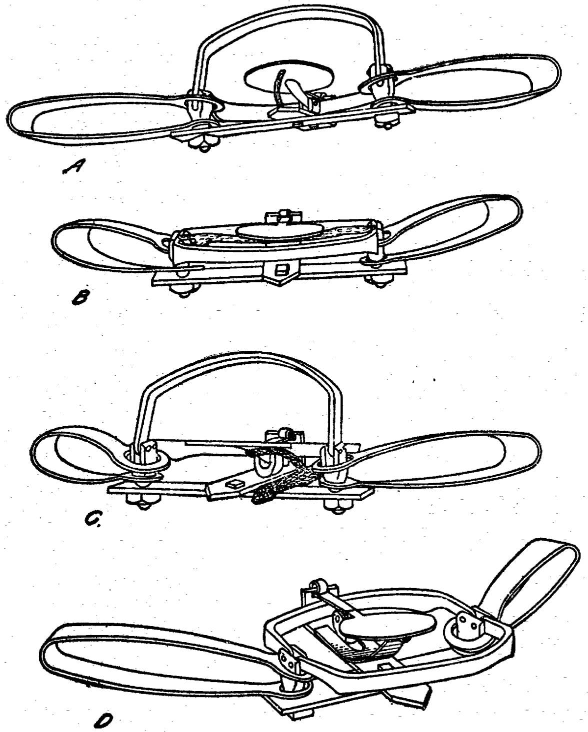

FIGURE 82.—Devices to prevent capturing small mammals and birds in traps set for predatory animals: *A*, Pan supported by twig (grass or a light coil spring may be used); *B*, splint support; *C*, forked-twig support; *D*, Biological Survey pan spring.

Simple Field Devices

A common method is to insert a piece of stiff grass, such as the saccaton grass of the Southwest, or a pliable green twig, in a vertical position between the trap base and the bottom of the pan (fig. 82, *A*). The twig should be a little longer than the distance between the base and the pan, so that it will be slightly curved when sprung into place. Another satisfactory method utilizes a piece of spring steel, such as may be obtained from an old phonograph or a clock, cut in lengths sufficient to exert the desired tension when placed between trap base and pan.

A splint cut from a piece of dry cedar, redwood, or other brittle wood will aid in making traps selective for predatory animals. The splint should be approximately the length of the jaw of the trap and one sixteenth to one eighth inch thick. It should be cut with a slight depression in the middle, wide enough to carry the trap pan when set (fig. 82, *B*). The ends of the splint rest on the straight top surfaces of the outer or loose jaw, about one half inch from each jaw post, and the trap pan rests on top of the splint. The dry brittle twig will break under the weight of a coyote, but will remain firm when lighter animals or birds step on it.

A V- or Y-shaped tension device (fig. 82, *C*) cut from the crotch of a willow, cherry, or other pliable twig, is successfully used by many trappers. One end of the main twig is placed across the trap base, and the other extends back parallel with the cross arm. The lateral twig is placed beneath the pan and provides a springlike tension. The tension may be varied by using twigs that differ in size and strength.

Biological Survey Pan Spring

One satisfactory method of providing selectivity in trap sets has recently been developed by the writer in cooperation with the personnel of a trap-manufacturing company. This contrivance (fig. 82, *D*) may be attached to any standard no. 3, 3½, 4, 14, 44, or 114 Newhouse trap. It is provided with a slot that fits under the beveled edges of the pan post. The spring rests on top of the cross arm and engages the underside of the trap pan. When pushed back so that the apex of the slot sits snugly against the front of the pan post, the spring carries a tension of 3 to 5 pounds on a set no. 4 trap. When pulled out so that the fingers of the spring are barely engaged under the beveled edges of the pan post, the tension is increased so that it takes a 5- to 8-pound weight to spring the trap. With this variable tension, it is possible so to adjust the spring that the trap may be set to meet conditions in different localities. It is well to set the spring with a maximum tension where porcupines and badgers are abundant, but with less tension where ground squirrels, rabbits, and other small animals are causing interference with traps set for predators. In using these springs it is to be borne in mind that the tension increases as the spring is pulled outward.

Several thousand of these springs have been supplied to trappers working for and under the supervision of the Biological Survey, and have proved a practical means of providing the selectivity so long desired in trap sets. It is known as the Biological Survey pan spring and is now on the market. A patent on it has recently been granted, dedicated to the free use of the public.

In using any contrivance to provide tension on the pan spring it becomes necessary for the hunter to make adjustments in the trap so that the pan maintains the proper position. If it is too high, a sharp blow with a hammer on the outer side of the upturned end of the cross arm will force the trigger inward, thus lowering the position of the pan. If the pan is too low the upturned end of the cross arm may be bent outward or the trigger may be bent slightly upward with a pair of pliers. Each trap should be carefully adjusted to prevent the pan spring or other tension arrangement from interfering with proper setting or speedy action.

Albert M. Day, *Bureau of Biological Survey.*

PRUNING Young Forest Trees Provides Work and Gives Profitable Crops In many parts of the United States lands not under cultivation are naturally restocking to forest trees. Many farmers and landowners find themselves in the timber-growing business, simply by allowing trees to grow on lands otherwise idle. The business of establishing forest plantations also is gaining headway.

The grade of lumber cut from second-growth stands is for the most part seriously lowered by the many knots which mark the growth of branches from the tree. Early removal of the lateral branches, whether in natural stands or plantations, will greatly increase the intrinsic value of the lumber cut from the trees later (fig. 83).

Nature pruning, accomplished by close spacing of the trees, is often only partly effective. Even in plantations spaced 6 by 6 feet, branches which die from shading often remain on the trees for a long time, or

FIGURE 83.—Norway pine plantation 23 years old: *A*, Before pruning; *B*, after pruning. The larger trees in this plantation should have been pruned at least 5 years earlier. Pruning saw mounted on long handle shown leaning against tree.

the dead branches break off at some distance from the trunk, leaving projecting stubs which cause loose and defective knots, and prevent the production of clear lumber.

Artificial pruning is a means of supplementing the natural process, or it may be the sole reliance in very open stands. The pruning of forest trees is an established practice in Europe. In the United States the present surplus of labor would seem to afford an exceptionally good opportunity to begin a more general practice of forest pruning.

In an analysis of lumber cut from 4½ acres in a 42-year-old stand of loblolly pine in Louisiana in 1930, it was estimated that, had the trees been pruned of lateral branches for a height of 16 feet when they were 4 to 5 inches in diameter at breast height, the value of the lumber would have been increased about $100 per acre over the value of that actually cut. If this had been done, the percentage of lumber classed in the best grades would have been increased from 2½ percent to 42 percent. The increased value discounted at 6 percent compound interest would have allowed an expenditure of $17 per acre 30 years earlier to conduct the pruning.

Preliminary experiments indicate that pruning costs should run well below $17 per acre. Time records on Norway pine trees in a plantation 23 years old in Wisconsin show that a total of only about 10 minutes per tree is required to prune the lateral branches to a height of 16 feet. In any stand not all of the trees need to be pruned. Usually the pruning would be confined to trees that are to grow to the end of the rotation.

Pruning tools are simple. The branches below a height of 6 or 7 feet can be quickly cut with a straight pruning saw having rather coarse

FIGURE 84.—Examples of efficient and inefficient methods of pruning branches. *A*, Norway pine immediately after pruning, with branches cut close to the stem of the tree; *B*, white pine pruned 2 years. Projecting branch stubs will cause knots for years to come.

teeth. For branches from 7 to 12 feet above the ground a pruning saw with a slightly curved blade and with teeth on each edge should be mounted lengthwise on a straight handle about 6½ feet long. The back of the blade may be used to make a small cut on the underside of the branch if there is a tendency for the branches to strip down. For the higher branches between 12 and 16 feet, a handle about 11 feet long will be required.

For success in pruning it is important that the work be done when the trees are of proper size. As a rule, the branches should not be pruned from the upper one third of the trunk. Thus trees to be pruned to a height of 16 feet should be not less than 24 feet in height. However, pruning should not be delayed after the trunks are more than 3 or 4 inches in diameter. If the stands are rather open and the trunks taper considerably, the pruning should be done in two installments, the first pruning reaching to a height of 9 or 10 feet when the trees are 15 to 18 feet in height, and the second to a height of 16 feet, following as soon as the trees have attained sufficient height. According to this program the size of the branches to be cut off ordinarily would not exceed a diameter of 1½ inches.

In all cases the branch cuts should be close to and parallel to the tree trunk, so that they will be covered quickly and smoothly by the increasing diameter growth of the tree (fig. 84).

In the South, where injurious insects are likely to multiply rapidly if green branches are left lying about the trees in summer, it is best to prune only during the autumn and winter seasons, but except in such cases the pruning may be done whenever opportunity offers. Pruning the young forest may be considered primarily as a slack-time or between-season job for men who would otherwise be idle. It thus serves the double purpose of providing profitable employment and producing a profitable timber crop so far in advance of that provided by "natural" or scrub second growth that there is no comparison.

B. H. PAUL, *Forest Service.*

PURCHASE of Lands for National Forests in East Extended in Summer of 1933

Allotment of funds under the President's Emergency Conservation program has helped greatly to speed up the land-purchase program for national forests in the East which began 22 years ago under the Weeks law. This law, passed in 1911, provided for the purchase of forest land for the protection of the headwaters of navigable streams. In 1924, by the terms of the Clarke-McNary law, the authority was broadened to include purchases of land for timber production as well as for stream-flow protection.

While the provisions of these two acts were not limited to any particular part of the United States, they have been applied only to those parts east of the Great Plains. Only 26 percent of the total commercial forest area lies west of the Great Plains, but that region contains 95 percent of the existing national-forest area. And while 74 percent of the total acreage of commercial forest is in the eastern half of the United States, it has only 5 percent of the area of national forests. Under such conditions, the need for the enlargement of national forests in the East is urgent, and therefore all appropriations for purchase of forest land have been expended here. The general-exchange act and related acts will be depended upon for the consolidation of the Government-owned lands in the national forests in the West.

For a long time the maximum Federal program contemplated for the eastern half of the United States an ultimate national-forest area of 16,000,000 acres. It has, however, become apparent that eventually something more than 100,000,000 acres of forest land in the East should be protected and administered by the Federal Government in order to serve the public interest adequately. The eastern half of the country contains 90 percent of the population and the majority of the watersheds most important for navigation, water supply, and flood control.

Great and urgent as the need has been for the extension of the eastern forests, however, the realization of the control of even

16,000,000 acres has been delayed because of lack of funds, and by the first of the fiscal year 1933 prospects for speeding up the program were not very good.

At the close of the fiscal year 1932 there were a total of 42 purchase units, situated in 20 States east of the Great Plains within which purchases of land for national forest purposes had been sanctioned by the National Forest Reservation Commission, which passes upon all purchases. In 31 of these units, situated in 19 States, there had been purchased or was in process of purchase an aggregate of 4,727,680 acres of land. The total expenditure for this land had been $21,203,021.93.

Virginia led all the States in the amount of land actually acquired, a little more than 600,000 acres. New Hampshire came next, with almost 500,000 acres, and North Carolina was third, with approximately 400,000 acres. In each of the States of Tennessee, Pennsylvania, and Wisconsin, more than 350,000 acres had been acquired, and in each of the States of Georgia, West Virginia, Arkansas, and Michigan, more than 300,000 acres.

By 1933 the economic situation resulted in a strong tendency to get rid of forest lands for what they would bring. In some cases money was urgently needed to relieve hard living conditions; in many others land was tax-delinquent or was becoming so. Since the appropriation during the fiscal year was barely enough to complete the purchase of lands previously approved, however, action on new offers seemed to be out of the question. This was despite the fact that recent developments in several Eastern States showed increasing interest in and approval of the work. Several States raised the limitations which had been placed on Federal purchases of land, and other States authorized purchases, or advocated them urgently.

$20,000,000 Allocated by Executive Order

At this most opportune time, the President, by his Executive order of May 20, 1933, allocated for the purchase of lands $20,000,000 of the funds made available by the act of March 31, 1933, thereby permitting early action upon the large acreage which had been offered, examined, and appraised, and covered by option prices acceptable to the United States.

This action has made possible the acceleration and broadening of the acquisition program. During the next 3 months there was approved for purchase by the Secretary of Agriculture and the National Forest Reservation Commission an area equivalent to about one fifth of the entire acreage acquired during the preceding 22 years, and almost twice as much as during the preceding fiscal year. The total is 941,625 acres, to cost $1,763,964. Besides this, an extensive series of new purchase units and additions to existing units have been approved that will increase the area to be purchased to approximately 12,000,000 acres. Of the approved new units, 4 are in Mississippi, 4 in Missouri, 2 in Illinois, 1 in West Virginia, 1 in Michigan, 1 in Minnesota, 1 in Florida, and 1 in Puerto Rico.

The incomplete condition of purchase units had interfered with the best use of the Civilian Conservation Corps on eastern national forests. The new fund made available by the President greatly facilitated the allocation of these men to useful work.

Great impetus has been given to the establishment of adequate national forests east of the Great Plains. At the same time many needed improvements are being made and much constructive work, which otherwise would have been greatly delayed, is being accomplished by the men of the Civilian Conservation Corps on national-forest land.

BERYL G. GARDNER, *Forest Service.*

RABBIT-RAISING Profits Materially Influenced by Age at Marketing Raising domestic rabbits for food and fur is today an important minor farm industry in the United States, though less than 20 years have elapsed since the Belgian hare craze was running rampant. Through the cooperation of the Bureau of Biological Survey, rabbit breeders' associations, the Federal Trade Commission, and other agencies, unscrupulous operations have now been curbed, and rabbit raising is on a sounder business basis than ever before. During the past 2 years, however, extremely low market prices and the competition of other meats on a decidedly below-cost-of-production basis have all but ruined many commercial rabbit raisers. As a result, the breeders are looking more and more for dependable basic facts on costs of production, and the Biological Survey is obtaining such facts by conducting experiments at the United States Rabbit Experiment Station, Fontana, Calif.

Marketing at 8 Weeks of Age

Among the Bureau's recent accomplishments in this work, one of the most important is its experimental determination that 5.3 pounds of feed, two thirds of which is alfalfa hay, will produce 1 pound of live rabbit at 60 days of age, including feed for the doe. On the basis of average prices that grain producers received for concentrates and alfalfa hay during the 9 years previous to 1933, the feed cost of producing 1 pound of live rabbit to this age is 5¼ cents, and buying grain from a dealer wholesale or retail would make the feed cost proportionately higher. In this experiment 90 New Zealand does bred for 4 litters a year produced per doe about 63 pounds of live 60-day-old rabbits—or more than 18 young weighing approximately 3.4 pounds each. However, certain individual does are consistently better producers, and there are rabbit breeders who have raised the productiveness of their rabbitry to a higher level, through careful management and selection, and by preventing losses due to unsanitary conditions and disease. Constantly increasing competition will make such management a necessity.

This experiment resulted in information especially valuable to rabbit breeders in sections where rabbits are sold at 2 months of age. In other sections the market demands are for heavier rabbits and for meat firmer and more tasty than that from rabbits just weaned.

Marketing Heavier and Older Animals

In order to determine the feed requirements of carrying young rabbits beyond weaning age, an extensive experiment was carefully conducted at the Rabbit Experiment Station in which the rabbits were fed until each individual had attained a weight of 6 pounds. Data on 263

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In order to determine the feed requirements of carrying young rabbits beyond weaning age, an extensive experiment was carefully conducted at the Rabbit Experiment Station in which the rabbits were fed until each individual had attained a weight of 6 pounds. Data on 263 animals, bucks and does in about equal number, show that, according to averages, young weighing slightly more than 3 pounds when a few days older than 8 weeks required a little more than another 8 weeks to attain a weight of 6 pounds, the does attaining this weight 4 days earlier than the bucks. The animals were given 8 different rations, but the average feed requirement for producing 1 pound of live weight was 2.51 pounds of concentrates, 3.77 pounds of alfalfa hay, and 0.55 pound of green feed. On the basis of the average prices that grain producers received for feeds during the 9 years preceding 1933 the cost of this feed per pound of increased weight in young rabbits would vary on the average from 6.4 cents to 7.9 cents, depending upon the kind of feed supplied. For all the rations used it would average 7.13 cents. Again it should be noted that buying grain wholesale or retail will increase the feed cost.

The results of these experiments show that the feed cost of adding 1 pound to the weight of rabbits between the weaning age and an age at which they weigh 6 pounds is 22 to 50 percent greater than the feed cost of producing 1 pound of weaned young. The kinds of feed supplied the young rabbits, however, were not identical with those supplied the older ones, and costs other than feed (interest on investment, service of buck, labor, hutch space, etc.) would be materially greater during the period when the young are kept with the doe. (The proportion of feed costs to total costs of raising rabbits has not been determined for either the nursing period or that after weaning.) On the other hand, approximately 15 percent of the older animals, some of which might have been sold at weaning time, died before they attained a weight of 6 pounds.

Relative Values of Products

To obtain data on the meat and the fur produced by young rabbits, the investigators slaughtered each animal used in the second experiment as soon as it attained the 6-pound weight. They found that, on an average, the dressed carcass, including liver and heart, comprised 54.9 percent and the green skins 9.2 percent of the live weight. These skins are being used in studies to determine the effect of various factors on the primeness of domestic-rabbit pelts. The percentages of the total weight of the dressed carcasses of each cut averaged as follows: Hind legs, 35.4; saddle, or back, 24.4; front legs, 12; liver and heart, 7.8; and the rib portion, 20.4.

As the rib portion carries the smallest quantity of meat but constitutes one fifth of the carcass, the Biological Survey has suggested that it might be a good marketing policy to sell the ribs separately, at a decidedly lower price per pound, increasing slightly the price on the more edible portions so as to maintain the same average price for the entire carcass.

Frank G. Ashbrook and Chas. E. Kellogg,
Bureau of Biological Survey.

RANCIDITY in Foods Delayed by Excluding Certain Wave Lengths of Light

Foods having an annual value in the United States of nearly 2 billion dollars are subject to spoilage by rancidity. The loss due to this form of spoilage often amounts to as much as 5 percent of the total value of the product. Among the foods apt to become animals, bucks and does in about equal number, show that, according to averages, young weighing slightly more than 3 pounds when a few days older than 8 weeks required a little more than another 8 weeks to attain a weight of 6 pounds, the does attaining this weight 4 days earlier than the bucks. The animals were given 8 different rations, but the average feed requirement for producing 1 pound of live weight was 2.51 pounds of concentrates, 3.77 pounds of alfalfa hay, and 0.55 pound of green feed. On the basis of the average prices that grain producers received for feeds during the 9 years preceding 1933 the cost of this feed per pound of increased weight in young rabbits would vary on the average from 6.4 cents to 7.9 cents, depending upon the kind of feed supplied. For all the rations used it would average 7.13 cents. Again it should be noted that buying grain wholesale or retail will increase the feed cost.

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The form of rancidity so familiar to both manufacturer and consumer, while the result of oxidation, is to a large extent activated by exposure to light between the time the food is manufactured and its ultimate consumption. Foods are more apt to develop rancidity during the summer months when sunlight is long and intense. When oil-bearing foods are protected from light, rancidity is prevented or delayed. Experiments conducted in the Bureau of Chemistry and Soils have demonstrated that when commodities subject to rancidity are inclosed in green or black containers, rancidity is appreciably delayed.

Various oil-bearing foods were used in these experiments. First it was found that exposure to ultra-violet light for a few hours or to direct sunlight for a somewhat longer period caused oil-containing products to become rancid. Samples of the same products were then wrapped with such colored wrappers as were commercially available and exposed to direct and diffused sunlight both outdoors and in the laboratory. In every case the products in green wrappers kept free from rancidity for a much longer period than did those in wrappers of other colors. Potato chips packaged in the usual commercial wrappers became rancid within a week, whereas the same product wrapped in green remained fresh and edible for at least 2 weeks. Cashew nuts kept in a clear glass bottle and exposed to direct sunlight became rancid in 4 days, whereas another sample of the same kind of nuts kept in a green bottle under the same light conditions remained fresh for more than 8 months. Similar results were obtained with corn meal, peanut butter, walnuts, and lard.

Particular Shades of Green Necessary

Not every shade of green will thus retard rancidity. It was found that the shade of green most effective for this purpose is penetrated only by light waves of 4,900 to 5,800 angstrom units. This shade approximates chlorophyll green or grass green. A wrapper or container may appear to be the proper shade of green and yet allow harmful light waves to pass through. Hence, it is advisable to examine spectroscopically all wrapper or container material intended for protecting oil-bearing foods in order to be sure of their protective qualities.

Why does green rather than any other color delay rancidity? Every wave length of light from the extreme violet to the far red in the visible spectrum, as well as the ultraviolet and infrared in the invisible spectrum, acts chemically upon substances that absorb it. This applies not only to foods and numerous other manufactured products but also to pure chemicals and certain pharmaceuticals. It has been found that oils and fats absorb wave lengths of light in the ultraviolet and blue ends of the spectrum and to a slighter extent those at the red end. It is probable that the absorption of these wave lengths of light causes vegetable and animal fats to become rancid. Consequently anything that excludes these light waves from oil-bearing commodities delays or prevents rancidity. Wrappers or containers of the proper shade of green filter out these harmful light waves and allow only the green light waves to pass through.

Besides delaying or preventing rancidity, it has been shown that green better than any other color preserves the aroma, freshness, color, and flavor of commodities such as certain fruit juices, sauerkraut juice, and coffee. The discovery of a way to prevent rancidity in foods should benefit the farmer through increased consumption and also through increased prices.

There is hardly an industry using agricultural products that cannot profit in some way by the use of green in the packaging of its goods. The corn-meal, rice, smoked-meat, baked-goods, butter, lard, fish, and salad-oil industries are only a few that could realize appreciable savings by the use of a proper light-excluding wrapper or container.

The discovery that a certain shade of green has the property of preventing or delaying the development of rancidity has opened up a new field of research of importance to the farmer, the manufacturer, and the consumer alike, not only in the food industry, but in connection with nonfood commodities such as certain pharmaceuticals and cosmetics.

MAYNE R. COE, *Bureau of Chemistry and Soils.*

RAT Baits Canned to Aid Cooperative Antirat Campaigns A safe and effective rat bait packed in sterile tin cans ready for immediate use in cooperative antirat campaigns is the latest development in the Bureau of Biological Survey's efforts to reduce losses caused by rats. Rats cause the farmers of the United States a yearly loss of more than $200,000,000.

One of the most persistent demands upon the Department of Agriculture has been for information on practical methods of rat control, and for more than 25 years the Biological Survey has had specialists working on the problem. This at first was purely investigational, and the results were made available to thousands of farmers in printed bulletins. Later more direct assistance was given on a restricted scale by farm demonstrations and by advice on control procedure, following surveys of areas heavily infested with rats.

Beginnings of Cooperative Rat Control

With the growing realization that control of the migratory rat is more a community than an individual problem, organizations have called upon the Bureau to furnish leadership in cooperative antirat campaigns. Rat control on a community basis was inaugurated in 1920, when a provision was inserted in the Agricultural Appropriation Act authorizing cooperation in destroying injurious rodents. Early work along this line culminated in the Virginia State-wide antirat campaign in 1923, during which approximately 110 tons of poisoned bait were distributed in a single week.

Although highly successful from the standpoint of destroying rats, the Bureau's earlier campaigns were not entirely satisfactory because the active ingredient then used in the bait, barium carbonate, was responsible for some destruction of dogs, cats, chickens, and other domestic stock. As a result the Bureau returned for a time chiefly to the purely educational aspects of rat control, but redoubled its efforts to devise a means of rat repression that would not harm domestic animals or endanger human life. These investigations have resulted in the development and use of red squill on a commercial scale.

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Although highly successful from the standpoint of destroying rats, the Bureau's earlier campaigns were not entirely satisfactory because the active ingredient then used in the bait, barium carbonate, was responsible for some destruction of dogs, cats, chickens, and other domestic stock. As a result the Bureau returned for a time chiefly to the purely educational aspects of rat control, but redoubled its efforts to devise a means of rat repression that would not harm domestic animals or endanger human life. These investigations have resulted in the development and use of red squill on a commercial scale.

Red squill has proved to be as effective in destroying rats as were barium carbonate and other more virulent poisons, and in addition it has the highly desirable feature of being relatively harmless to other animals. This is because its taste is obnoxious to most of them, and, furthermore, when eaten it usually acts as an emetic. Rats, however, are unable to vomit, and fortunately do not find red squill unpalatable; thus they readily succumb to its toxic action, whereas human beings and domestic stock evade it. Red squill thus closely approaches the unique distinction of being a poison specific for this one rodent species.

Red-Squill Baits Effective

With the advent of red squill into the field of rat control in 1928, there was opportunity for renewing the cooperative campaigns. The original plan was for the farmers of a community or of a whole county to furnish the bait ingredients to be mixed at central points by rodent-control specialists of the Bureau. The farmers would then carry the prepared bait back to their premises, and all, in accordance with directions, would expose it simultaneously. This procedure met with such success that the limited personnel of the Bureau was unable to meet all the demands made for cooperation, as baits containing freshly ground beef and fish could not be prepared much in advance of actual use.

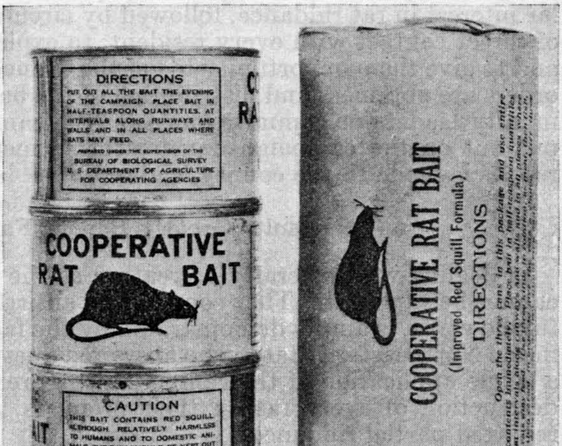

FIGURE 85.—Each package of cooperative rat bait consists of three 8-ounce cans, one containing meat, the second fish, and the third cereal. The three kinds of bait are exposed in rotation, cafeteria style, giving the rats a choice of food, but in all cases a lethal quantity of red squill. The package contains sufficient for 100 or more baits—about the right quantity for the average farm.

On account of danger of quick spoilage of ready-mixed bait prepared on a large scale, the mixing and distribution raised a serious problem. The solution appeared to be to mix the baits before the campaign season and then so to preserve them as to permit adequate and simultaneous distribution, regardless of the size or number of cooperative campaigns requested. For this purpose a suitable canned bait was finally perfected after extensive experiments in cooperation with the food-preservation laboratory of the Massachusetts State College and the Pharmacology Section of the Food and Drug Administration of the United States Department of Agriculture.

Powdered red squill was mixed by machine with ground horse meat, ground silver hake or whiting fish, and a combination of cereals. These three were separately canned and sterilized in steam retorts. The new, ready-to-use canned baits proved to be safe, effective, inexpensive, uniformly toxic, always fresh, and easily handled. It was decided to prepare the bait in quantity for campaign use exclusively and to label it Cooperative Rat Bait (fig. 85).

As Federal funds were not available for the purpose, a revolving fund, maintained by the Massachusetts State College, was established and used in financing the purchase of ingredients and preparation and distribution of the baits. At a small canning factory on the New England coast, leased during the fiscal years 1932 and 1933, approximately 400,000 cans of these rat baits were prepared and distributed.

Cooperative rat campaigns, through which the rat baits are exclusively distributed, are for the most part organized by county agricultural agents on a county-wide basis in accordance with Bureau of Biological Survey plans. Features of these plans include educational and publicity drives, through newspapers and radio, to arouse a popular interest in rat riddance, followed by circular letters or other means of direct contact with every resident, to explain the campaign details and to give them opportunity to get the canned bait at cost. Advance orders are obtained, and distribution of the bait is made through community leaders or committeemen on the campaign date. All bait is put out on the campaign day by the farmers, and a report on the results is made to the county leader a week later.

Results Greatly Benefit Farmers

In dealing with as crafty a creature as the rat, 100 percent control cannot be expected. That cooperative antirat campaigns are successful, however, is amply demonstrated by the fact that of 12,650 persons in the Northeastern States who answered questionnaire cards following a single application of the canned bait, more than 6,600 reported the destruction of every rat on their premises, and most of the others reported partial riddance.

To gain information on the extent of losses from rats on farms, each cooperator was asked to estimate his own losses. The yearly average of nearly 1,200 farmers in the Northeastern States was almost $35. Assuming that this average applies to other sections as well (except in the Rocky Mountain States, where rats are relatively scarce), the total annual loss from rats on farms of the United States would be more than $211,000,000.

To lessen this tremendous loss and to check the menace of the rat to human health, the Biological Survey is striving to improve the baits and to increase efficiency in organizing and directing the cooperative antirat campaigns, and looks forward with confidence to increasing success in future efforts at rat control.

JAMES SILVER, *Bureau of Biological Survey.*

RESTOCKING of Marshes With Hand-Reared Mallards Not Proved Practicable

Among the many remedies suggested to meet the crisis that in recent years has confronted North American waterfowl, is the proposal that lakes and marshes be restocked with hand-reared ducks. Some sportsmen and conservationists have even urged the three were separately canned and sterilized in steam retorts. The new, ready-to-use canned baits proved to be safe, effective, inexpensive, uniformly toxic, always fresh, and easily handled. It was decided to prepare the bait in quantity for campaign use exclusively and to label it Cooperative Rat Bait (fig. 85).

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With this situation in mind, it becomes desirable to look into the matter and, if possible, to learn what success might be expected from restocking marshes with hand-reared ducks. Almost all species of North American ducks have been reared in captivity, either from captive parents or from eggs or young taken in the wild, but for most of these species breeding has been accomplished only a few times and the results have been far from satisfactory. Usually it is necessary to simulate natural conditions on so large a scale that the quantity production required for restocking purposes has been entirely impracticable. Those who propose the breeding of wild ducks under artificial conditions generally have in mind the mallard.

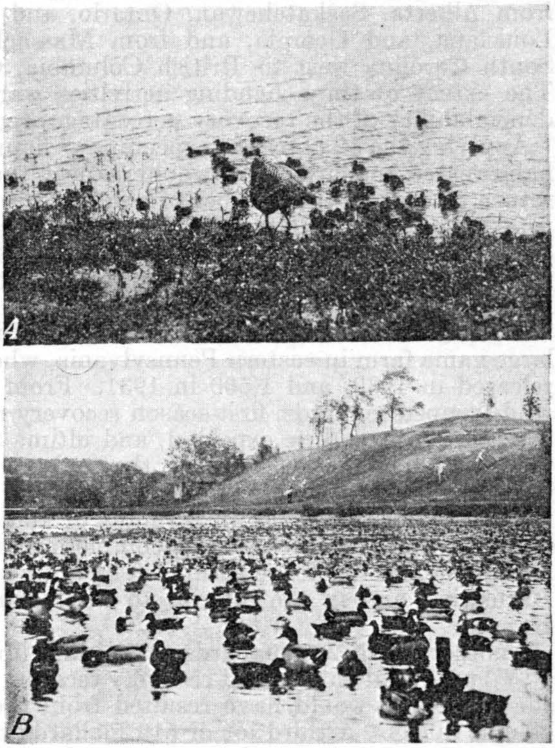

FIGURE 86.—*A*, A domestic hen fostering mallard ducklings, a common method of rearing these birds for restocking; *B*, hand-reared mallards with heavy, stocky bodies. They lack the nervous temperament desirable in sporting ducks.

Mallard Ducks

Mallards breed freely and persistently in captivity; in fact, wild-caught birds tame so rapidly that in a few weeks or months they become thoroughly domesticated. In spite of all precautions, however, captive-bred mallards unfortunately are prone to degenerate into the common barnyard or "puddle duck" type of bird (fig. 86). Thus far, the writer has not seen a hand-reared mallard that he would consider a good sporting bird. Nevertheless, fairly large numbers of mallards have been raised and liberated by public-spirited individuals, sportmen's organizations, and State game farms, and more than 3,500 have been marked with Biological Survey bands.

From its banding operations with native wild-caught waterfowl which have been continuous since 1920 and have resulted in the marking of more than 125,000 ducks, an average of about 12 percent have been recovered the first season, with a cumulative recovery over a period of years of 20 to 25 percent. These percentages have been maintained very closely season after season, regardless of species or place of banding. At least 50 stations for the trapping and banding of waterfowl have been or still are in regular operation in the region from Alberta, Saskatchewan, Ontario, and Maine south to Texas, Louisiana, and Georgia, and from Massachusetts, Maryland, and South Carolina west to British Columbia, Oregon, and California. The extent of these banding activities warrants confidence in the dependability of the recovery percentages recorded.

Applying the 12 percent "expectancy" figures to the 3,500 liberated hand-reared mallards, one would expect that during the first year return records to the number of about 420 would be received, with a total expectancy of 700 to 875 (20 to 25 percent). Actually, however, only 52 of these birds were subsequently reported. The percentage of return (nearly 1½ percent) was lower than that for many species of nongame birds.

A representative case concerns two lots of mallards produced on a large game farm in eastern Pennsylvania, where 800 were banded and released in 1930, and 1,500 in 1931. From a similar total of 2,300 wild-trapped mallards, first-season recovery records to the number of at least 275 would be expected, and ultimately nearly 600 would be reported. The fact is, however, that only 29 of the hand-reared mallards have been recovered and reported, and 21 of these, or about 71 percent, were taken within a radius of 100 miles from the point of release. This indicates almost complete localization, though of the remaining 8, a few traveled up the Atlantic coast to Quebec and New Brunswick, and in the interior to Michigan, Minnesota, Iowa, and Kansas.

Another lot of 231 mallards reared and liberated at Southampton, N.Y., produced only 2 local-recovery records, as against the 25 or more that typically would have resulted from the same number of wild-caught ducks. A third lot of 519 mallards raised and liberated on a Connecticut State game farm, produced only 20 records instead of the expected 60 or more. A fourth lot of 506 from a California State game farm yielded just 1 recovery record, as against at least 60 that should have been reported from that number of wild mallards.

Black Ducks

The black duck, a close relative of the mallard, has a much more wary and nervous disposition, and for one reason or another it has been produced in numbers at only a few clubs and game farms. Nevertheless several lots of black ducks so raised have been marked with Biological Survey bands.

At Southampton, N.Y., 519 were banded and released, and 73 of these were subsequently recovered. All but 18 were taken in New York, most of them within a short distance of the banding point, but a few traveled north to Quebec and New Brunswick and south toMaryland. The total recoveries constitute more than 14 percent of those released, and while this is below the normal expectancy (20 percent), it more nearly comes up to the expected recovery than does the recovery of mallards.

The liberations at Southampton are of peculiar interest because of the fact that in 1927 and 1929, of 219 black ducks released, 32 produced return records, whereas of 231 mallards released in the same years, only 2 recovery records were obtained. The recovery percentage for the mallards has been about 0.9 percent, while for the black ducks it has been nearly 15 percent.

The only other comparable record available for the black duck concerns 77 hand-reared birds banded and released in 1928 at a Connecticut State game farm. Of these, 10 were subsequently reported, or practically 13 percent, which again is more nearly comparable to normal expectancy from banded wild-caught individuals. This is to be compared with less than 4 percent obtained from a liberation at the same point of nearly 7 times as many mallards. Also, the black ducks were much better distributed, only two being killed locally, the others being reported from points south to Maryland and Virginia.

An Unpromising Outlook

Though the available evidence is insufficient for general conclusions, it appears that under present methods, efforts to restock waterfowl marshes with hand-reared mallards are doomed to failure. Efforts with black ducks, however, are somewhat more successful. What becomes of the liberated hand-reared mallards is not known. Possibly, because of their semidomestication, they are merely leading lives of indolence in the marshes, refusing to migrate or to fly for the hunter; or else, untrained in the rigors of natural environments, and being solely on their own resources, they may be unable to cope with living conditions and so succumb rapidly to the elements and to natural enemies. If, however, the former hypothesis should be found correct, then the progeny of these birds may be an asset to our supply of game waterfowl. Need for a more thorough study of the problem is indicated, both in the field and on game farms.

FREDERICK C. LINCOLN,
Bureau of Biological Survey.

SEED Generally Will Not Stand Both High Moisture and Warmth

The preservation of seed from harvest to planting time is of primary importance to agriculture and all plant-production work. With many crops and under many conditions it is important to keep seed longer than from harvest to the next planting season. Aside from insect injury, the two conditions destructive to the life of seed are high moisture and high temperature. In general, seed will endure relatively high moisture if the temperature is low but not freezing, and relatively high temperature if the moisture content is kept low. A combination of high moisture content and high temperature induces rapid respiration and accompanying rapid destruction of the vitality of the seed.

When seed is produced in a moist climate it will retain a high percentage of moisture, and when kept on shipboard for a long time, as in the case with some imported seed, it loses vitality rapidly when brought into a warm climate. This has frequently happened with imported seed that was produced in the moist climate of northern Europe or that has been brought from the other side of the earth. Chewing's

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In the handling of grain for feed and milling, low moisture content is recognized as one of the most essential elements of quality, and equipment for drying is recognized as essential in storage elevators. In connection with seed for planting, moisture content and drying equipment have been given little attention except to a limited extent in the case of corn on the northern edge of the Corn Belt, although seed begins to lose its vitality sooner than its feeding or milling qualities.

In general, seed should be dried carefully at harvest time and kept protected from moisture as far as possible. When seed produced in a cool climate is to be used in a warmer climate, it should not be moved until near seeding time. Even a seed as easily injured as onion may be kept in good condition for unusually long periods and in a warm climate if it is carefully dried and put in airtight containers, as is the case with Bermuda onion seed raised in the Canary Islands and so extensively used in Texas and the Southwest. Cold storage offers another means of keeping seeds in an unfavorable climate, but for most kinds of seed this is too expensive and, as in the case of other products kept in cold storage, there is rapid deterioration after it is removed from storage.

If seed is moved from a cool climate to a warm climate, or from a dry climate to a wet climate, it will not retain its vitality for long.

Seed should be kept dry and cool and should be tested before being planted.

E. H. Toole and E. Brown,
Bureau of Plant Industry.

SELECTION of Honeybee Stock is Important to Beekeeper and Orchardist

Among the important factors which govern the size of a honey crop are weather conditions, the acreage of nectar-producing plants, the number of colonies, the race or strain of bee, and the system of management. The beekeeper obviously has no control over the weather conditions in any locality or the acreage of plants from which his crop comes, but he can limit the number of colonies and exercise control over the race or strain, and the system of management.

Merely limiting the number of colonies would seem to be the simplest way of controlling the honey crop. Under this method of control, however, a beekeeper, in requeening, may purchase queens of another strain or race which differs in honey-producing capacity from the strain or race replaced. Furthermore, it has not been proved that the best system of management for one race is best for all. An exact knowledge of races and strains of races of the honeybee is therefore of great importance in any planned control of honey production. Such knowledge is not yet at hand, and beekeepers in this country still await the appearance on the market of strains that have been scientifically demonstrated to be practically constant in honey-gathering capacity under given conditions. An investigation now being carried on by the Division of Bee Culture of the Bureau of Entomology is making it possible fescue seed, with a high moisture content after 2 months on shipboard, has arrived practically dead, while other shipments that had a low moisture content when shipped have arrived in good condition. Much of the seed of hairy vetch grown in the humid areas of northern Europe arrives in the United States with a high moisture content and loses its vitality rapidly when taken to the warm climate of the South Atlantic seaboard and the Gulf coast.

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The present inadequate knowledge of races and strains of the honeybee is not due to the American beekeeper's lack of experience with more than one race, as all the standard races have been imported into the United States. It is true that until 1861 there was only one race in this country, the Dutch or common black bee. This was brought in by early New England colonists, and there are reports that the Spaniards also brought it to Florida. Since that time all the commonly known races, the Italian, the Carniolan, the Cyprian, the Caucasian, and the German brown bee, have been brought here, and in addition such rarer races as the Palestinian, the Syrian, and the Saharan. These races are known to vary in temper, in swarming propensities, in fighting diseases and enemies, in physical characteristics, and in other respects. However, much remains to be done in the way of measuring and evaluating these differences scientifically so as to apply the results to practical beekeeping.

Races of Interest from Standpoint of Pollination

The problem of races is important to others besides the beekeeper. The orchardist, because of modern practices of clean cultivation, the cleaning up of hedgerows, forest fires, floods, and other similar factors, is faced with the loss of natural insect pollinators of his fruit. Consequently he depends more and more on the honeybee. Since the period for pollination is short and since it may coincide with cool or rainy weather, he requires a bee that will fly at lower temperatures and in cooler weather than does the honey producer. The grower of red-clover seed is turning to honeybees for the pollination of his crop, to make up for the scarcity of bumblebees. Formerly it was thought that the honeybee, because of its short tongue, did not work on red clover, but this has been found not true of certain strains at least. The growers of certain greenhouse vegetables, such as cucumbers, also depend on the honeybee for a successful crop and so need a bee that will keep its strength and vigor under greenhouse conditions. It may be that those agriculturists interested in the honeybee solely as a pollinating agent will find that the bee best suited for honey production is not the one best for pollen collecting.

Controlled Breeding Facilitates Study of Races

One of the obstacles to a study of the races and strains of the honeybee has been the fact that in nature the honeybee mates on the wing, and until recently no satisfactory method had been worked out for controlling mating under laboratory conditions. Mating can be controlled by letting queen and drones fly in isolated localities, but in view of the widespread character of beekeeping in this country there is difficulty in obtaining practicable sites for mating stations removed from all bees. The development of means of artifically inseminating queen bees, such as is offered by the Watson method, gives promise of development and improvement of honeybee races. Recent work at the bee culture laboratory has much simplified the apparatus and has provided means for quantity output of queens inseminated by this method. The manner of obtaining numerical data on physical characteristics has also been much simplified through the use of a microprojector.

Selection Important from an Economic Standpoint

The importance of using the best race for a given locality and situation, or some strain of that race, is evident even when we consider merely the amount of capital represented by the queen bees in use in the United States today. According to a recent estimate by the Bureau of Agricultural Economics, there are about 4,600,000 colonies of bees in this country, and this means an equal number of queens in active service each year. At a conservative valuation under present prices each queen is worth about 50 cents, making a total of $2,300,000. Many beekeepers requeen every year, but even if the queens are replaced only every other year, these figures mean that new queens having a total value of more than a million dollars are put into use each year. An exact knowledge of various races and strains, coupled with scientific breeding for improved stock, should enable the beekeeper to control his production more readily and with less waste of capital than is possible under present conditions.

W. J. NOLAN, *Bureau of Entomology.*

SESAME Seeds Have High Nutritive Value; Very Rich in Calcium

Sesame seeds are an important article of food in Asia, Africa, and the Near East, having been used for centuries either as a staple, or for ceremonial purposes. Travelers in North China are familiar with the small flat rich cakes thickly coated with sesame seeds and tasting somewhat like Scotch short bread, and one of our imported delicacies is the halva of southern European countries, combining sesame with honey.

Sesame was first grown in the United States several hundred years ago by Negroes who brought the seeds with them from Africa and planted them in Georgia and South Carolina. The sesame plant naturalized itself and still flourishes particularly in the islands off the South Carolina coast and furnishes the commercial confectioners of Charleston with seeds that they use in their candies.

Until recently one of the chief merits of sesame seeds, the fact that they are extremely rich in calcium, had escaped the attention of nutritionists. Three types of whole sesame seeds (*Sesamum orientale*) analyzed last year by the Department, from seeds grown in Arizona, averaged about 1 percent of calcium. These findings confirmed those in published reports from other parts of the world in showing sesame seeds to be far richer than any of our common plant foods in this important element. They are rich, too, in protein of good quality, in fat, and in phosphorus. The seeds have a very agreeable taste, especially after roasting, and like nuts they can be used in many ways in the diet. In view of these facts sesame seeds appear to have excellent possibilities as a food, especially for use in diets that need to supply an abundance of calcium.

The calcium content of the whole seed is very much higher than that of the decorticated seed, since much of the calcium lies in the seed coat. The creamy white seed that is used to some extent by the bakers in this country is the decorticated seed imported in this form from China.

According to data compiled from various sources the percentage composition of the whole seed is about as follows: Water, 5.8; protein ($N \times 5.3$), 19.3; fat as ether extract, 51.1; total ash, 5.7; crude fiber, 3.2;

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The calcium content of the whole seed is very much higher than that of the decorticated seed, since much of the calcium lies in the seed coat. The creamy white seed that is used to some extent by the bakers in this country is the decorticated seed imported in this form from China.

According to data compiled from various sources the percentage composition of the whole seed is about as follows: Water, 5.8; protein ($N \times 5.3$), 19.3; fat as ether extract, 51.1; total ash, 5.7; crude fiber, 3.2;

and carbohydrate by difference including fiber, 18.1. The calcium and phosphorus content of the seed is about 1 and 0.7 percent, respectively, expressed as the element in percentage of air-dry substance. No satisfactory data on iron content are available. The decorticated sesame seed contains only about 3 percent total ash, 0.08 percent calcium, and 0.68 percent phosphorus, judging by a single imported sample analyzed last year by the Bureau of Chemistry and Soils.

The nutrition laboratory of the Bureau of Home Economics has shown that whole brown sesame seed fed to rats as a supplement to a low calcium diet was effective in promoting growth and bone development. Decorticated seed used as a supplement gave poor growth, little better than that of the negative controls that received no calcium supplement.

Supply Now Chiefly Imported

At the present time, sesame is not being raised to any extent in this country as a commercial crop, but it is brought in from the East, chiefly as a source of oil. There is a market for it, as import figures show. The oil has a mild, agreeable flavor, good keeping qualities, and is used as a salad oil and for other purposes. The press cake makes a valuable stock or poultry feed. Agriculturists say that there is no great difficulty in raising it in warm climates. There is one important characteristic of the plant that has kept it so far from being a commercial success in the United States. This is the tendency for the pods to shatter as they gradually ripen, making sesame seeds hard to harvest without great waste. The California and Arizona Agricultural Experiment Stations are trying to overcome this difficulty, either by developing new varieties or by working out suitable harvesting methods, since it does not pay well in this country to harvest such crops by hand as the orientals do.

Sesame-seed recipes developed in the Bureau of Home Economics include muffins, cookies, and a brittle similar to peanut brittle, as well as directions for roasting and salting the whole seeds. Many other uses are possible in breads and cakes, or even in soups.

The newly recognized fact about the nutritive value of sesame seed should give added incentive to its production and utilization in this country.

CHARLOTTE CHATFIELD, *Bureau of Home Economics.*

SHEEP Range on Red Desert Used in Connection With That on National Forests Surrounding the Red Desert railroad station, in southern Wyoming, is one of the most important winter sheep ranges of the Western States. Its area is approximately 11,000 square miles, or about 7,000,000 acres. The Red Desert, a high, undulating plateau, with an altitude of about 7,000 feet, lies along the Continental Divide, and is crossed and intersected at intervals by low ranges of hills. It extends from the Platte River bluffs on the east to the Green River bluffs on the west, and from the northern limit of Sweetwater County to the hills and mountains separating Colorado and Wyoming on the south.

This section is a semidesert, with an average annual rainfall of less than 10 inches. There is very little rainfall during the summer months, the heaviest precipitation occurring during March, April, and May.

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This section is a semidesert, with an average annual rainfall of less than 10 inches. There is very little rainfall during the summer months, the heaviest precipitation occurring during March, April, and May.

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This usually results in the development of all forage plants by early summer. The grasses and saltbushes cure rapidly, and the light snows permit the use of the area as winter range. Winter grazing, no doubt, accounts for satisfactory forage conditions found over most of the area (fig. 87).

The forage of the Red Desert, much better suited to sheep than to cattle, consists largely of the saltbush type, the sagebrush type, and

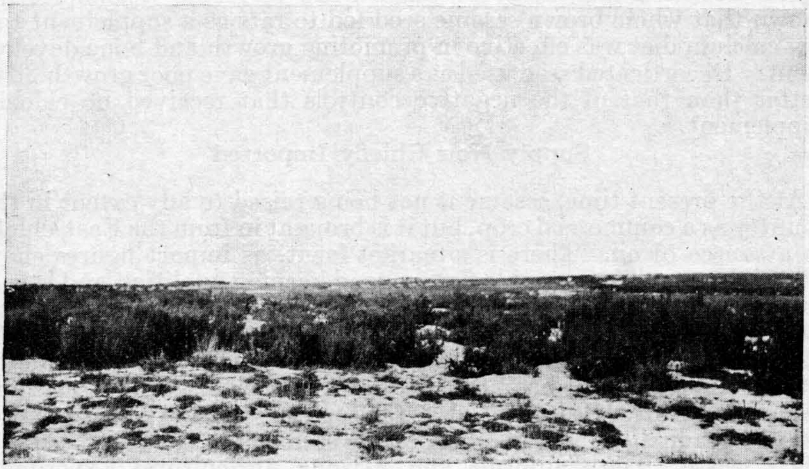

FIGURE 87.—Typical winter range of the Red Desert of Wyoming.

the grass type. The saltbush is probably the most important forage type of this great saline area. Sheep do not use the sagebrush contin-

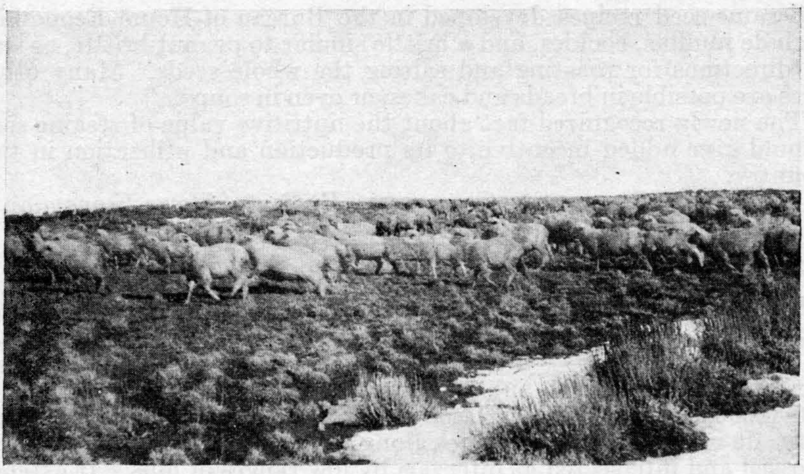

FIGURE 88.—Sheep on winter range consisting of black sage, salt sage, bud sage, and salt sagebrush grass.

uously from choice, but as the leaves are evergreen, they remain fresh throughout the winter. Even in the driest seasons these plants furnish a large amount of winter forage. While many grasses occur in the Red Desert the most important are various species of wheatgrass (*Agropyron* spp.). Others include Indian ricegrass (*Oryzopsis hymeroides*), bluegrasses (*Poa* spp.), and bromegrasses (*Bromus* spp.).

Flockmasters Never in Ruinous Conflict

Local stock associations have been responsible for such control as has been in effect on this winter range (fig. 88), and although a large part of the area is public domain, there have never been any ruinous conflicts for range between flockmasters. Sheep owners have purchased the odd-numbered sections from the Union Pacific Railroad, as a large part of the area lies within the railroad grant, and have thus secured use of adjoining public domain.

The owners of the sheep outfits using this winter range control water holes, and own or control hay ranches and range lands, in the areas surrounding the Red Desert, which are used as spring and fall ranges. If the national-forest ranges were not available for summer use, however, these investments would be of little value, while the Red Desert itself would be of little use. The summer ranges are within the Medicine Bow National Forest of Wyoming and the Routt and Arapaho National Forests of Colorado to the south, and the Wyoming National Forest to the north. These high mountain areas, with their luxuriant growth of weeds and grasses, abundance of fresh water, and cool climate, furnish ideal conditions under which to handle sheep and produce both wool and lambs of highest quality.

In late April and May sheep which have been held on the winter range are taken to the adjacent foothill sections for lambing. After lambing and shearing are completed, ewes and lambs are trailed 80 to 150 miles to the national-forest ranges, where they remain for from 70 to 80 days. In September or early October they are trailed from the national forests to fall ranges similar to those used in the spring. In November or early December, depending upon the fall of snow, sheep are again trailed to the Red Desert for winter range.

Most of the 600,000 sheep using the Red Desert as a winter range use the national forests as summer ranges. No separation of values of the Red Desert as a sheep range can be made without considering the adjacent national-forest ranges. One without the other is of little value, but together these areas of northern Colorado and southern Wyoming form one of the most important range areas of the West. The sheep industry of this section is possible because of the availability of fall and spring ranges adjoining the national forests, mountain range for summer use in the forests, and winter range on the Red Desert. The Forest Service has recognized this in approving grazing preferences on the national forests. These are based on the ownership or control of fall, winter, and spring ranges within or adjacent to the Red Desert section.

HUBER C. HILTON, *Forest Service.*

SHEEP Range Supplied by National Forests in Pacific Northwest Handling range sheep successfully in the Northwest requires that they be removed in summer from the hot, dry valleys and placed on mountain ranges, where water, succulent feed, and lower average temperatures provide favorable grazing conditions (fig. 89). This seasonal movement also allows the low ranges to produce a forage crop during the summer months for grazing use during the other seasons of the year. Spring, fall, and winter sheep range and cultivated feed crops in eastern Oregon and Washington provide for many more sheep than can be handled on the summer ranges, which puts a premium on summer range.

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There are approximately 2,700,000 range sheep in Oregon and Washington. Of this number, over 1,200,000 graze under permit on the national forests in Oregon, Washington, Idaho, and Montana (fig. 90). Approximately 800,000 graze on privately owned timberlands within

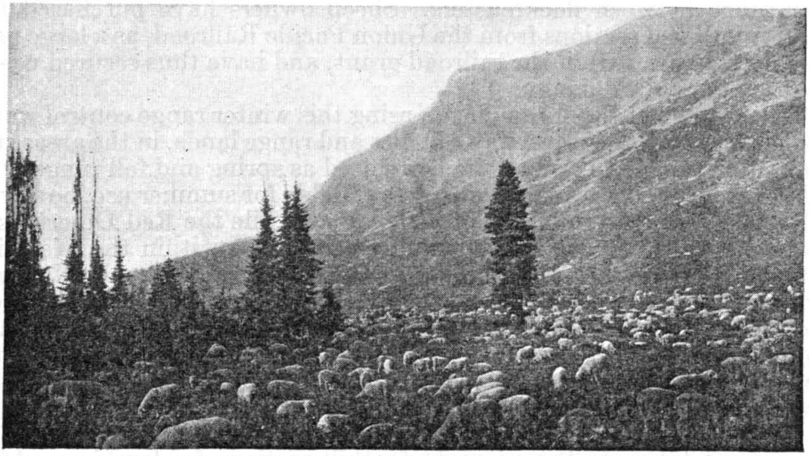

FIGURE 89.—On summer range high up in the Cascade Range of Washington.

or immediately adjacent to the national forests. Indian reservations carry a considerable number. and the remainder graze on the public domain.

On ranges in privately owned timberlands and on most of the Indian reservations sheep are grazed under annual leases. National-forest per-

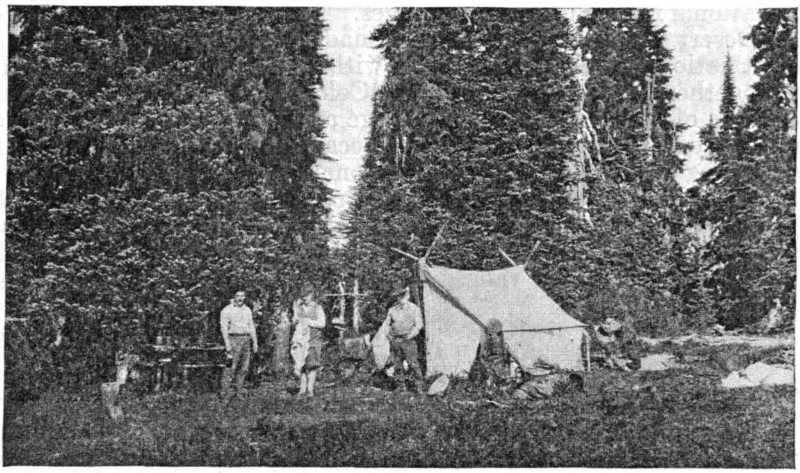

FIGURE 90.—A sheep camp amid the alpine firs of a national forest.

mits are issued annually or for a definite term of years. The lease price for privately owned timberlands is based on competition for the range and varies from 5 cents to 25 cents, or more, per acre, and there is little or no restriction on the number of sheep grazed. Since several acres per head are required, the cost of grazing on such lands is important.

Indian-reservation lands are leased on a competitive-bid basis, but the number of stock allowed to graze is specified.

Nominal Charge on National Forests

On the national forests, a nominal rate only is charged, while the numbers of sheep, seasons of use, and management of sheep are definitely regulated (fig. 91). On the public domain no charge is made, and

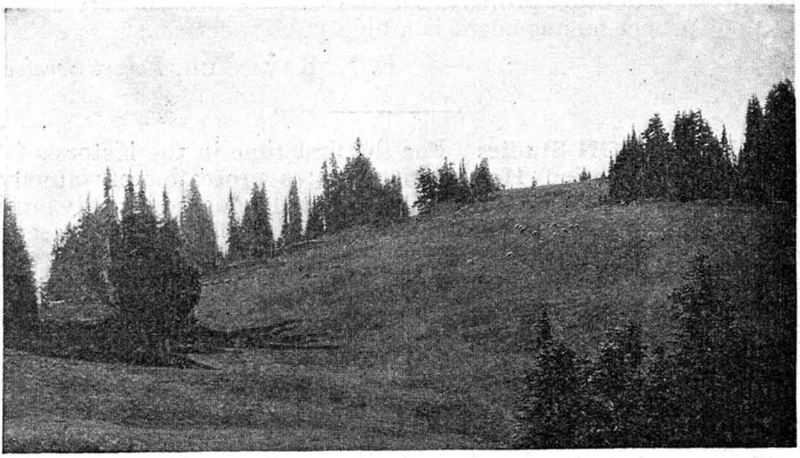

FIGURE 91.—Sheep spread out on the high mountain pastures.

there are no restrictions or regulations. Of all these range areas the public domain is of the least value comparatively. It is at a lower ele-

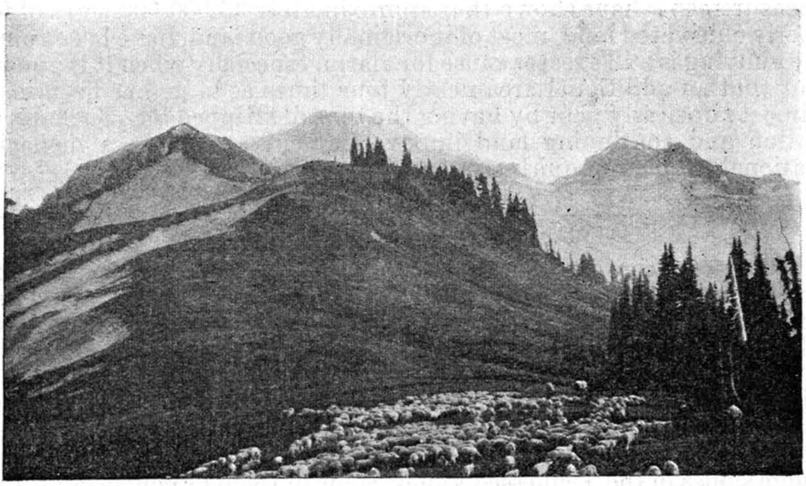

FIGURE 92.—Summer sheep range on the Mount Baker National Forest, Wash.

vation, and its once-valuable forage has been largely destroyed by unseasonable use and overgrazing.

The beneficial results obtained from regulated grazing are calling attention to the increasing need for conservation of forage resources. Without national-forest and other summer ranges a large part of the range sheep in Oregon and Washington would disappear from a territory which is not suited for the production of crops other than livestock (fig. 92).

At normal price levels the sheep industry represents in the two States at least $60,000,000 in capital investment and its annual gross income is in excess of $20,000,000. Therefore, any condition or change that adversely affects it immediately becomes a matter of State-wide concern. The interrelation between the summer ranges and the capital investment in real and other properties in the range country is very definite, and their proper management is a high public service.

E. N. KAVANAGH, *Forest Service.*

SOIL-EROSION Studies Show Vegetation Has Dominant Role

For the first time in the history of the United States, protection of watersheds and cultivated fields from costly erosion is receiving some measure of the serious attention it has merited. The President has repeatedly pointed to the necessity for doing something to control the evil. He is backing up his suggestions through the work of the Civilian Conservation Corps, part of which is being devoted to gully control and the planting of trees on strategic watershed areas.

Anyone who critically examines the situation confronting the rolling agricultural lands of the Nation, comprising fully 75 percent of all land in cultivation and an equal percentage of that on the western ranges, readily recognizes the seriousness of the problem of unrestrained soil erosion. The destruction of the fertility of 190,000 acres of formerly cultivated land in a single county and its abandonment would seem sufficient cause for at least slight alarm. That recent surveys and erosion measurements have shown that approximately 35,000,000 acres of formerly cultivated land, most of it originally good land, have been ruined by gullying is still greater cause for alarm, especially when it is pointed out that an additional area nearly four times as large has been made almost hopelessly poor by having the topsoil stripped off. Such devastation and continuing land impoverishment constitute a menacing national problem requiring immediate corrective action.

Danger of Delay

Unless effective erosion-control measures are widely adopted without much further delay, the country is going to have on its hands a domain of worn-out land—land on which the struggle for a living will eventually hold many farmers to a low level of subsistence agriculture.

Land is still being cleared in various parts of the United States on slopes so steep that the farmers confess they expect the soil to wash away to a mere geological skeleton of soil within from 3 to 8 or 10 years of cultivation. Such clearings were observed in 1933 on mountain and ridge slopes in the Tennessee Valley, some of them having declivities in excess of 70 percent. This means that the better lands are largely in use, and that in many parts of the country farmers continue to turn to marginal and submarginal lands where severe impoverishment or destruction by erosion too often is an inevitable part of their programs of land utilization.

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Mechanical Means of Control

As far back as the time of Christ, walled terraces were being built to hold the soil in place. No one knows for how many centuries the aborigines of the Philippine Islands, the Ifugaos, have been growing crops on strips of steep mountain slope supported by walls made with the greatest labor. Even in this country the cotton farmers of the southern piedmont have been using hillside ditches and embankments (or terraces) as a means of erosion control for almost a hundred years. On tea and rubber plantations of the East, steplike excavations are dug into hillsides, true bench terraces, in order to protect the slopes from the overwhelming erosion otherwise resulting from monsoon downpours, while in the United States the broad loose terrace has been developed and is used extensively.

Vegetation and Erosion

For some reason man has not resorted so much to the oldest and most effective measure for controlling erosion, that is, thick-growing vegetation, such as trees and grass. The primary effort has been to get trees off the land and to destroy the matted prairie grasses so that cultivated crops might be grown. Clearing away all obstacles ahead of seeding has been the first thought of agricultural man, as well as the second and dominating thought, too generally.

Another deterrent to the use of thick-growing vegetation has been sheer ignorance. There was no clear understanding of the fundamental facts involved in erosion processes until recently. No basic studies of this most potent agency of destruction affecting the physical characteristics of the land were undertaken until a few years ago. Almost every conceivable phase of the numerous chemical and physical forces affecting soil and agriculture had been studied in some aspect except this force of erosion, the very one that should have been investigated first because it is the most deadly enemy of soil productivity.

It has long been understood that destructive soil washing rarely affects unburned forests. It was generally assumed by students of forestry that the protection involved was due to the direct capacity of the forest mold to absorb rain water, plus the binding power of tree roots. Now we find that although these effects are important, they constitute a relatively small part of the full protective force of woodland cover. The most effective function of a forest in this respect is that the vegetable litter covering the floor of all wooded areas serves not only to filter suspended soil from water flowing in from eroding areas above, wherever there are such areas, but also to physically retard direct erosion of the soil beneath. Thus, clear water is sent down into the soil by way of the natural pores and the holes formed by earthworms and decaying roots. Muddy water from eroding land quickly seals these diminutive openings; rains accumulate over this screen and flow away burdened with loosened soil.

From a controlled forested area in central Oklahoma 250 gallons per acre of clear water ran off during a continuous rainy period in May 1930; but from a similar area alongside where the leaf mold had been burned over, 27,600 gallons of muddy water ran off. The water-holding capacity of the mold on an acre of ground of the same kind was shown to be approximately 17 tons. In other words, the forest mold absorbed 17 tons of rain water for every acre and in addition caused the absorption by the soil beneath of 97 tons per acre in excess of the amount absorbed where the vegetable covering had been burned. This filtering and protective effect of the litter thus resulted in the absorption of more than five times as much water as was soaked up by the litter itself.

The average annual losses from this area for a 3-year period have been 0.013 tons of soil per acre and 0.11 percent of the rainfall from the virgin area, as against 0.22 tons of soil per acre and 4.53 percent of

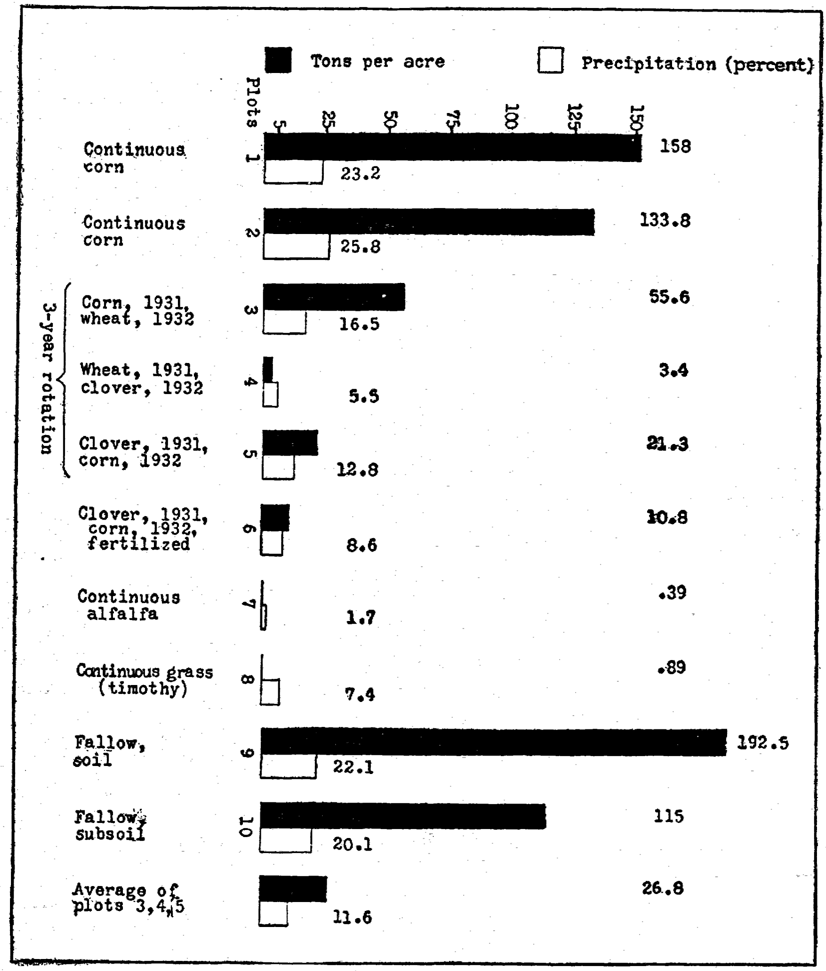

FIGURE 93.—Total soil losses and average water losses from Shelby loam (8-percent slope) for 1931 and 1932. Northern Missouri-southern Iowa erosion station, Bethany, Mo. Rainfall, 1931, 42.52 inches; 1932, 27.04 inches. All plots 6 by 72.85 feet except plot 1 which is 6 by 145.7 feet.

the rainfall from the burned-over area. In other words, the unburned forested area has held back 15 times as much soil and 41 times as much water as the burned-over area.

Soil Lost with Corn Growing

On July 1, 1933, 2½ inches of rain washed 39 tons of soil per acre from a cornfield near La Crosse, Wis. Twenty-seven percent of the rain was lost as run-off. On the same kind of land, having the same declivity, covered with bluegrass, neither a drop of water nor a particle of soil was lost because of this same rain.

The total soil loss from an 8-percent slope of Shelby loam (one of the most important corn soils of north-central Missouri and southern Iowa) devoted to corn continuously has been for 2 years 133.8 tons per acre, as against a loss of only 0.39 ton per acre from the same kind of soil on which alfalfa was grown, having the same slope and receiving the same rainfall. The corresponding water losses were 25.8 percent from the cornland and 1.7 percent from the alfalfa land (fig. 93).

The Protective Power of Grass

The average rate of soil loss caused by erosion from the principal type of land on moderate slopes in the wheat belt of western Kansas has been 4,260 times greater where a cultivated crop (kafir) was grown than where the same kind of land was covered with native plains sod. Also, about 400 times as much water has been absorbed where the ground was well grassed. Expressed in another way, where a tilled crop is grown, 58 years would be required to wash off the 7 inches of topsoil covering this kind of land down to comparatively unproductive subsoil, as against 246,000 years to wash off the same depth of soil where grass is grown.

Strip Cropping to Save Soil

A considerable number of farmers in the hill country of Wisconsin, apparently sensing the prodigious soil-saving capacity of grass, have for a long time been practicing strip cropping to protect their sloping fields. They have left the steeper upper slopes in woods; below the woods they have planted grass along the contours, that is, in level strips across the fields rather than up and down them; and below this they have grown alternately strips of corn, grass, potatoes, grass, and so on. The grass intercepts the water flowing downhill, checks its velocity, spreads it out and causes much of it to sink into the ground, thus giving protection to the strips below.

This practice not only affords a large measure of protection from erosion but provides a balanced type of agriculture, the growing of a variety of crops. Since the grass strips often include clover, and since the position of the crops is switched from time to time, the practice also means the employment of soil-improving rotations.

To some extent Pennsylvania-Dutch farmers have used this system, which so closely conforms to nature's method of stabilizing sloping land. But few others have done so until recently. At the erosion-experiment stations throughout the country the method is being tested in various modifications, employing a large number of the thick-growing, soil-saving crops, as grasses, clovers, sorghum, alfalfa, lespedeza, peas, and so on. A combination of strip cropping with small embankments (terraces) following the contours of the fields is being tested also. One farm of over 5,000 acres in the erosive black belt of central Texas is now completely and effectively covered with this cheap, simple system of soil conservation.

Protecting Iowa Farms

During a year and a half only 1 pound of soil per acre has been lost from a large experimental field at the erosion station in southwestern

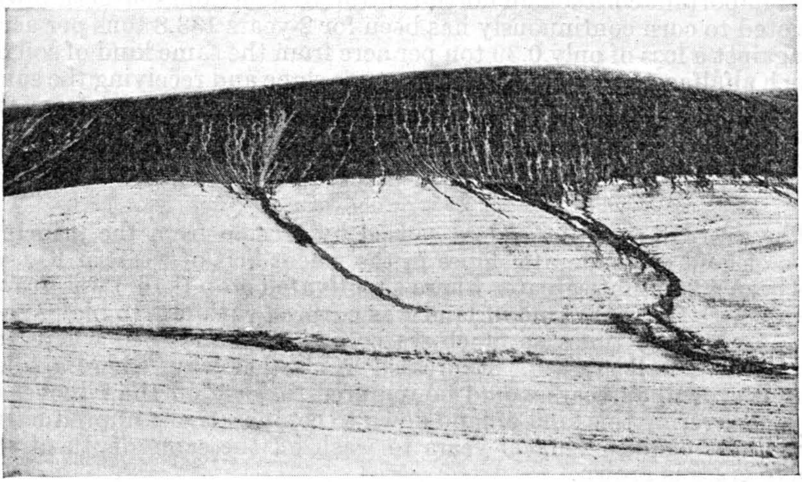

FIGURE 94.—Severe erosion on summer fallow, upper part of field, and no erosion on wheat stubble below, caused by the heavy rain of July 30, 1931, Whitman County, Wash. The dark streaks through the lower part of the field represent erosional debris from above, caught by the wheat stubble.

Iowa, where corn has been grown in alternate, parallel strips with alfalfa. The same kind of land used for corn according to prevailing

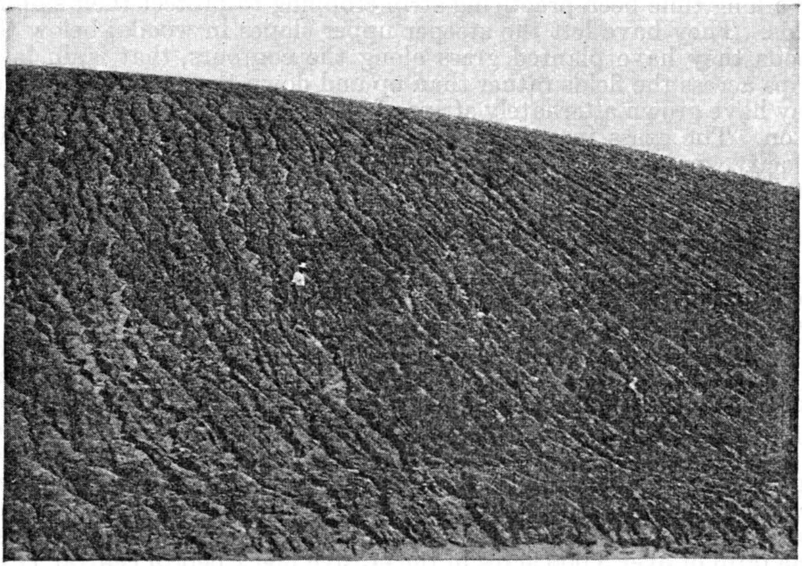

FIGURE 95.—Erosion on summer fallow, 40-percent slope, caused by the rain of July 30, 1931. Many of the small gullies go to the depth of plowing. Whitman County, Wash.

practice has lost 9 tons of soil an acre, or 18,000 times as much as that protected by grass strips. The land used in these comparisons is the best upland corn soil of the country, if not of the world, the loessial soil of the Missouri River Valley. Under prevailing practice, soil is being swept off these indispensable lands with every heavy rain, like leaves driven before the winds of autumn.

A Permanent Cure for Erosion

Even grain stubble is a potent agency for slowing down erosion (both water and wind erosion). Heavy summer rains (as that of July 30, 1931) and melting snow cause a tremendous amount of washing on summer-fallowed steep slopes in the Palouse wheat belt of Washington, Idaho, and Oregon, but very little when the ground is covered with stubble. This effect is well illustrated in figures 94 and 95.

Vegetation in the form of forest or in thick grasslike growth is an inexpensive, permanent cure for erosion. In one form or another it can be used on all kinds of land, on any degree of slope and under all varieties of climate where there is heat and rain enough to make plants grow. Of course, all land cannot be used for forest and the thick-growing crops. We must devote large acreages to the erosion-producing, clean-cultivated crops, such as corn, cotton, tobacco, and potatoes; but it has been definitely shown that the two types of crops can be grown in conjunction with one another in such a manner as enormously to reduce soil and water losses. It now remains to educate the farmers of the Nation with respect to the advantages of the soil-protective types of agriculture. This can be done as soon as the Nation decides to adopt better farming methods, methods which call for the use of land more nearly in accordance with its adaptability and fitness and for the efficient protection of all cultivated slopes.

H. H. Bennett, *Bureau of Chemistry and Soils.*

SOIL Survey Is the Necessary Basis of Land Classification The agricultural readjustment, to which many leaders look for a solution of existing agricultural problems, has directed attention to the production potentialities of different parts of the country and to the necessity for a reliable inventory and classification of the lands of the country.

Economic classifications as a rule concern broad general kinds of land defined without any necessary relation to fundamental natural character. The units of such classification are defined on the basis of the possibility of profitably using such lands under the economic conditions prevailing at the time the classification is made. The groups are usually designated as marginal, submarginal, and supermarginal. These classifications may be based entirely on statistical data with no reference whatever to the character of the land. Such a classification may be called single-purpose since such classes when defined and located on the ground may be used for one purpose only. They simply define the varying degrees of marginality and offer no explanation of these variations. The data presented are not capable, through interpretation, of application to the solution of a wide range of problems.

However useful such classifications may be and however well they may fit the requirements of the term classification, they cannot satisfy the requirements of an inventory of lands.

Like a classification of any other series of natural bodies, a rational fundamental classification of soil bodies can be based only on the of the Missouri River Valley. Under prevailing practice, soil is being swept off these indispensable lands with every heavy rain, like leaves driven before the winds of autumn.

A Permanent Cure for Erosion

Even grain stubble is a potent agency for slowing down erosion (both water and wind erosion). Heavy summer rains (as that of July 30, 1931) and melting snow cause a tremendous amount of washing on summer-fallowed steep slopes in the Palouse wheat belt of Washington, Idaho, and Oregon, but very little when the ground is covered with stubble. This effect is well illustrated in figures 94 and 95.

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Like a classification of any other series of natural bodies, a rational fundamental classification of soil bodies can be based only on the characteristics of the bodies themselves. The classification discussed here is a natural classification.

Land has many characteristics. Not all of them are known, and the significance of some that are known is not well understood. It is not possible yet, therefore, to make one final classification of land applicable to all conceivable purposes. The classification here discussed is necessarily one applicable to agricultural uses. The basic agricultural use of land is for the growth of plants, mainly those plants which man has selected, because of their character, as his crops.

The term land connotes a part of the earth's surface, and for some purposes it applies merely to the existence of an area of the solid crust of the earth lying exposed to the air and sun. As an agriculturally used body it connotes an area of the solid crust with its form or relief and the condition of the air over it. It connotes climate, soil, and relief or shape of the land surface.

Preparation of Soil Map

All of these factors must be taken into consideration in any natural classification of agricultural land, but because of the different function of each factor in productivity each must be used as a basis of a classification and the resulting classifications superposed for the final result. Since classifications to be of practical use must be expressed in the form of a map, the procedure actually carried out involves the superposition of a map of an area classified according to climatic differences which affect production, another classified according to topographic differences, and a third classified according to soil differences. Climatic differences influence both kind of crop and amount of product. Relief differences concern accessibility or availability of a given area of land for agricultural operations, and soil differences concern primarily differences in amount of product. Primarily the three maps of a region to be superposed for a final land-classification map would be (1) a map of crop-adaptability regions, (2) a map of agricultural-availability regions, and (3) a map of productivity regions.

Climatic or productivity regions are large. In the United States the number may be reduced to about six, each covering therefore a large area. The construction of such a map on paper or in the mind of a student of land is a simple matter. This must be considered a first simple step in his work. The construction of an accessibility (relief) map requires more detailed knowledge of the country, for great differences of relief may be present within very small areas. Areas of uniform relief therefore are small, and such a map is extremely complex. In the United States details of relief throughout the country have not yet been determined, but enough is known to make reasonable progress in land classification possible.

Relief is not at all concerned with inherent productivity of a spot for plants. Aside from the fact that favorable climatic conditions are necessary for any plant growth at all, the climatic conditions are not factors determining differences of productivity except for large areas. Unit climatic areas are areas of relatively uniform adaptability, not areas of uniform productivity. A classification of the land area of the United States into wheatland, cornland, cottonland, grassland, and so on, could not solve the land-classification problem of the country, since that problem is concerned primarily with the thousands of productivity differences of areas within any one of the adaptability areas.

The problem of land classification is concerned with the adaptability-area map on which a greatly detailed map of different accessibility and productivity has been superposed.

Plant-Production Capacity is Primary

In a rational, fundamental, and comparative classification of land on a productivity basis the inherent natural capacity of the land for plant production must be the chief consideration. Data for such land classification cannot be obtained from statistics of productivity, since these merely express the results arising from a number of factors of which natural capacity of the land is one only. Of the three factors in the concept of land, climate and relief are mainly concerned with other matters than productivity; the only other factor, therefore, is soil, and the burden of productivity must be borne by it.

The indispensable data therefore for a land classification expressing capacity for plant production is soil data. Since plant production must take place on the natural soil, data regarding the characteristics of soils in their natural habitat are indispensable. These data must cover soil characteristics, the construction of soil units or soil types defined on the basis of definite combinations of characteristics, the distribution of each unit or type, and its area. This must be supplemented by comparative data on soil type-crop or natural-vegetation relationship that make possible an accurate interpretation of each type group of characteristics in terms of productive capacity. No such mass of data can be accumulated except through a long period devoted to the study of soils in the field. No amount of laboratory or crop-plot experimental work can supply it. The only investigations that have ever been concerned with such work are soil surveys. Soils as such have never been studied, the results accumulated, compared, interpreted, and expressed in final form in maps and discussions except by organizations engaged in the work of creating soil units and mapping their distribution in the field.

Since the character of the soil has been determined to an important extent by the character of the relief on which it has developed, the lack of detailed data necessary for the construction of a map of relief may be supplied to a considerable extent by a proper interpretation of a soil map.

That part of the work of land classification, therefore, which must be based on differences of soil productivity must rely almost exclusively on the maps and reports of the Division of Soil Survey.

Work Began in United States Many Years Ago

Fortunately this work was begun in the United States many years ago before the demand for land classification had arisen. Through cooperation in their work and participation in the expense between the Federal Bureau and State organizations in the several States of the Union, a large part of the country has been covered, and a personnel of thoroughly trained workers has been built up which makes possible the completion of any important specially required area, not yet covered, in a very short time. Only by using the accumulated results of the Division of Soil Survey is it now possible to make a natural (physical) classification of the lands of the United States on the basis of inherent natural-productive capacity.

C. F. Marbut, *Bureau of Chemistry and Soils.*

SOYBEANS Content of Amino Acids Varies Greatly With Variety Supplementing feeds to obtain a balanced protein ration is one of the most effective means of more efficient crop utilization, and at the same time tends to decrease the volume of crop production.

Protein is the most expensive constituent of foods and feeds. Every bag of feed, such as meals and mixed feed, is required by law in every State to be labeled with its protein content. Graduated premiums are paid for wheat according to a scale of increasing protein content. Protein is the element that produces muscle. Without enough protein of the right kind in the diet, animals will not grow, remain healthy, or reproduce.

Not all proteins have the same food value. One sack of feed may be an ideal ration, whereas another containing the same quantity of protein may be almost worthless because of the poor quality of its proteins. A protein which contains all the nutritionally essential amino acids in sufficient quantities and in a form available to meet the nutritional needs of an animal is referred to biologically as a protein of good quality. Proteins are made up of about 18 or 20 amino acids, 4 of which are essential for the growth and nutrition of animals. These are lysine, tryptophane, histidine, and cystine. When any one of these four amino acids is lacking in the diet, an animal cannot grow or be nourished satisfactorily.

Proteins in some of our most important foods are deficient and even lacking in one or more of these essential amino acids. Other proteins contain all of them in relatively large quantities. It is of utmost importance to farmers to know how to mix different feedstuffs to produce a balanced protein ration. Satisfactory utilization of foods and feeds depends on the knowledge of how to combine them so that the protein deficiency of one foodstuff can be corrected by mixing it with the proper quantity of another. In order to do this the quantity of amino acids in different foods must be known. This can be developed only by fundamental investigations on the properties and composition of proteins.

The chief proteins in many foodstuffs have been isolated in the Bureau of Chemistry and Soils, and their amino acid composition has been determined. Work is in progress on a method for determining amino acids in feedstuffs without first isolating and purifying the individual proteins. This should give a better picture of the protein value of the feedstuff in its entirety.

Recent studies in the Bureau of Chemistry and Soils on the proteins of soybeans have disclosed the fact that different horticultural varieties of the same seed may show differences in the amino acid composition. In view of the great increase in the production of soybeans in the United States during recent years, any significant difference in the food value of one variety over another becomes a matter of importance. The production of soybeans in the United States has increased from nearly 3 million bushels in 1931 to more than 16 million bushels in 1932 (1933 Yearbook). In 1931–32, more than 283 million pounds of soybeans were crushed (1933 Yearbook). After the oil was expressed, they yielded 200 million pounds of soybean cake. This press cake, or cake meal, is used for feeding as a protein concentrate. It contains from 37 to 40 percent of protein. The value of soybeans as a source of protein has long been recognized by practical feeders of farm animals.

The proteins contain all the known nutritionally essential amino acids, and are rich in lysine and tryptophane. Because some of the proteins of certain of the grains, notably corn and wheat, are deficient in these two amino acids, soybean meal is an excellent concentrate to use as a supplement to these foodstuffs. Studies made with laboratory experimental animals showed that a mixture of 1 part of soybean meal or peanut meal with 3 parts of corn meal or wheat flour is between two and three times more efficient for growth production than either corn meal or wheat flour alone, because of protein supplementation.

Few, if any, seeds have as many varieties as the soybean. W. J. Morse, of the Bureau of Plant Industry, brought from the Orient samples of soybeans representing between 2,000 and 2,500 different types and varieties. The unusually wide range of differences in the characteristics of a number of soybean varieties raised the question of whether there may be differences in the nutritional value of the protein of different varieties. Information on this point would be of importance in the selection of varieties grown for the production of seed intended for food or feed.

Significant Differences Demonstrated

Analysis of glycinin, the chief protein of soybeans, in 12 different varieties, most of them selected on the merit of their widespread popularity among the soybean growers of the United States, has shown significant differences in their composition with respect to 2 of the 4 nutritionally essential amino acids, cystine and tryptophane. The percentages in the different varieties range from 0.74 to 1.46 for cystine, and from 1.89 to 2.84 for tryptophane. Because these analyses were made on the isolated protein of the soybeans and not on the whole seed they do not give an accurate measure of the amino acids in the whole seed or meal. There are other proteins present in smaller proportions concerning the composition of which we have no information. In order to get a better picture of the protein quality of the whole seed or meal, recently developed methods have been applied for the determination of cystine and tryptophane in soybeans which give a fairly accurate picture of the amounts present in the whole seed or meal. Lysine and histidine, the other two essential amino acids, are known to be present in soybeans in adequate amounts and, therefore, have not been considered in these analyses. In table 8 are given the percentages of cystine and tryptophane in the defatted meal of several varieties of soybeans.

TABLE 8.—*The percentages of cystine and tryptophane in dry, defatted meal of several varieties of soybeans*

Variety	Cystine	Tryptophane	Variety	Cystine	Tryptophane
	Percent	*Percent*	Korean varieties:	*Percent*	*Percent*
Herman	0.49	1.13	No. 82284	0.476	1.17
Mammoth Yellow	.33	1.02	No. 85127	.473	1.12
Tokyo	.34	1.00	No. 85104	.407	1.09
Peking	.39	.93	No. 85123	.349	.93
Illini	.29	1.03	Japanese varieties:		
Chiquita	.32	.91	No. 80459	.396	1.11
			No. 85667	.389	.95

The first six varieties listed in the table, which are among the most popular grown in the United States, show differences in their cystine content which are significant from the standpoint of their protein nutritional value. For example, the Herman variety contains more than one and three fifths times as much as the Illini variety. The six listed last in the table represent varieties of Korean and Japanese soybeans which have not yet been grown in the United States, except on an experimental basis. Their relatively high cystine and tryptophane values are of interest in case they prove to be adapted to the soil and climatic conditions in the United States.

D. Breese Jones and Frank A. Csonka,
Bureau of Chemistry and Soils.

SPRAYING Wild Host Plants in California Reduces Beet Leaf-Hopper Injury During the past two seasons entomologists of the Department of Agriculture and of the beet-sugar companies in California have been carrying out a program of spraying against the beet leaf hopper that

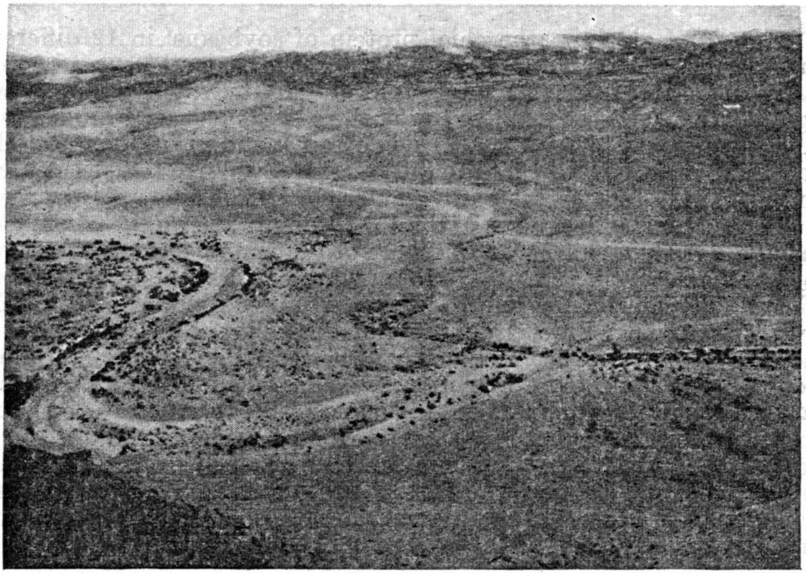

Figure 96.—A typical valley in the San Joaquin Coast Range foothills, showing the shrubs that are sprayed for the control of the beet leaf hopper.

is a departure from ordinary practice in materials, method, and location. Commonly the spray is applied directly to the crop to be protected, but in this case the spraying is being done at least 100 miles from the crop, on the wild food plants of the leaf hopper. Spraying is done in the fall before the beet crop is planted, to kill insects whose progeny would cause damage the following spring.

The beet leaf hopper carries a disease known as "curly top" of beets, and transmits it to the plant when feeding. This insect carries the same disease to tomatoes, white beans, and cucurbit crops. The leaf hopper winters in the dry inner foothills of the Coast Range on the west side of the San Joaquin Valley (fig. 96). A generation is pro-

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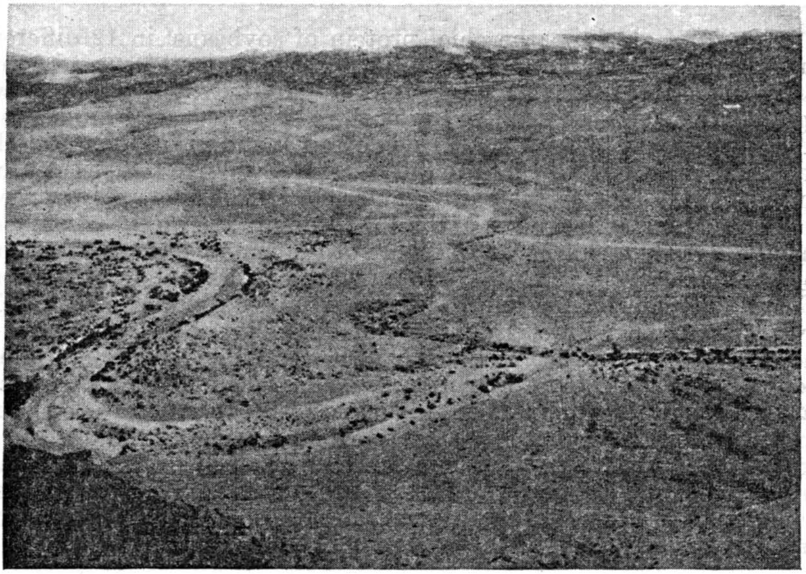

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Many attempts have been made to control the leaf hoppers in the beet fields, but none has proved effective. Because of the disease which it carries, an infected insect can seriously damage a beet plant in a single feeding, and one leaf hopper may feed upon and infect several plants in a short time. A small number of leaf hoppers can therefore spread a great deal of disease, and for this reason an effective control in the beet fields must be applied immediately after the spring flights and must be capable of eliminating the pests almost entirely.

Where the Beet Leaf Hopper Breeds

The beet leaf hoppers breed throughout the San Joaquin Coast Range foothills, but a study of their flights has shown that only those bred in the northern and central portions fly far enough north to reach the beet fields in injurious numbers. Spraying has been limited to these more important breeding areas.

As the summer is rainless in this section, there is very little green vegetation available when the leaf hoppers return in the fall. Patches of perennial shrubs and herbs growing in the bottoms of dry washes form most of the food supply. Such patches, usually only a few acres in extent, are scattered all along the foothills, and the insects gather upon them in large numbers and remain until the rains sprout their winter food plants. The total area of these patches within the spraying zone is about 10,000 acres. This entire acreage does not necessarily have to be sprayed in any one season, as leaf-hopper populations vary from year to year in any particular place. In 1931 about 4,000 acres were sprayed, and in 1932 about 6,000 acres.

How the Spraying is Done

As the area to be sprayed is uncultivated and is located at some distance from a base of supplies, it is important that the spray equipment be ruggedly built and that the materials used be concentrated.

A solution of concentrated pyrethrum extract in diesel-engine fuel oil is used. This is similar to commercial fly spray, but much cheaper, as the oil is not highly refined. The oil is sprayed from atomizing nozzles with compressed air, as a rather fine fog. This type of nozzle will distribute 6 to 7 gallons of concentrated spray per acre. The compressor and oil tank are mounted on a truck with dual wheels and large tires. For spraying large areas of low, fairly dense vegetation, a hood is mounted on the front of the machine to confine the spray from several nozzles. For spraying scattered vegetation, individual nozzles attached to long leads of hose are operated by men walking beside the machine. From 2 to 4 leads have been used, covering a strip 50 feet wide.

Because of variations in leaf-hopper abundance, it is necessary that the populations be estimated and the spray directed only to those areas that contain sufficient leaf hoppers to warrant spraying. No attempt has been made to eradicate the insects in one locality, but rather efforts have been directed toward reducing populations at all points to a relatively low level by spraying where the leaf hoppers are most abundant.

Results of Two Seasons' Spraying

Excellent kills are obtained with these machines, averaging between 85 and 90 percent of the leaf hoppers in the areas sprayed. Many areas having small populations are not sprayed, but in each of two seasons it has been possible to obtain a reduction of more than one half in the total population entering the foothills. This means essentially the same reduction in the number of leaf hoppers that fly into the beet fields the following spring.

The work in the fall of 1931 undoubtedly checked an incipient outbreak, and saved the sugar-beet industry many times its cost, which has been about $12,000 per year. The results of the second season's work were not so obvious, as the number of leaf hoppers entering the foothills was rather small, so the damage would have been slight if no spraying had been done. The hoppers were further reduced in numbers by spraying, and it was difficult to find either leaf hoppers or diseased beets over most of the beet area the next spring. About 50,000 acres, producing approximately 800,000 tons of beets, were protected. A saving of 1 percent on this crop amounts to $40,000. In these days when farm profits depend upon obtaining the utmost value per acre, this protection against curly-top damage has, in many instances, changed a probable loss to a slight profit. There has been a corresponding saving to growers of tomatoes and cucurbits in the sugar-beet area. In 1932 these crops suffered severely in the San Joaquin Valley, which was not protected, while unusually slight damage occurred in the area protected by leaf-hopper control.

The effects of the spraying appear to be cumulative, and the leaf-hopper breeding grounds are not producing so many hoppers per unit area as in the years before the spraying was started. If this continues, the cost of the annual spray program, as well as the chance of serious outbreaks, will be reduced.

It is probable that, with further experience, the program will be somewhat modified. Field work has shown that leaf hoppers concentrate upon small areas of winter host plants after the rains come, so spraying can be continued rather late into the winter. Some such spraying has been done experimentally and has proved effective.

WILLIAM C. COOK, *Bureau of Entomology.*

SUGAR-BEET Seed Grown Successfully in America by Overwintering in Field

The sugar-beet crop has long been unique among American agricultural crops because of its almost complete dependence upon Europe for its annual supply of seed. A shift from this traditional situation seems now definitely under way as the American industry takes advantage of new research developments of the United States Department of Agriculture. By discovering more efficient methods of seed production adapted to American economic conditions and by producing a new disease-resistant variety of sugar beets, the Government scientific work has changed the viewpoint in the industry as to sugar-beet seed and created a new demand, thus starting activities on the part of the industry that will check the flow to European seed producers of money from the pockets of American farmers.

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The record of sugar-beet seed importations for the years 1911–33, in comparison with the acreage harvested, is of interest in showing the volume of seed imported and the fluctuations during the period (table 9).

TABLE 9.—*Sugar-beet seed imports and value, and commercial acreage of beets harvested in the United States, 1911–33*

[In thousands; i.e., 000 omitted]

Fiscal year	Sugar-beet seed imported [1]	Declared value at foreign port [1]	Acreage of sugar beets harvested [2]	Fiscal year	Sugar-beet seed imported [1]	Declared value at foreign port [1]	Acreage of sugar beets harvested [2]
	Pounds	*Dollars*	*Acres*		*Pounds*	*Dollars*	*Acres*
1911	10,989	725	474	1923	16,495	1,579	657
1912	11,389	1,103	555	1924	11,620	1,121	817
1913	14,768	1,064	580	1925	14,250	1,484	653
1914	10,294	800	483	1926	8,733	957	687
1915	15,883	1,410	611	1927	14,516	1,497	732
1916	9,042	1,031	665	1928	13,255	1,323	646
1917	14,470	1,685	665	1929	14,068	1,389	694
1918	15,636	4,541	594	1930	15,628	1,749	783
1919	987	248	692	1931	13,439	1,304	714
1920	19,338	4,365	872	1932	19,499	1,325	765
1921	19,907	4,124	815	1933	15,820	899	[3] 1,016
1922	4,193	546	530				

[1] Compiled from Department of Commerce Reports. Data given for 12 months ended June 30 of year indicated.
[2] From statistics of Bureau of Agricultural Economics in U.S. Department of Agriculture Yearbook. Harvested acreage is less than acreage planted.
[3] Preliminary.

Seed Produced in United States in 1887

Since 1887, when the late Harvey W. Wiley reported successful production of sugar-beet seed in the United States, the Department and individuals in the industry have urged the desirability of domestic production of seed adapted to the various American sugar-beet regions. No practical progress was made toward producing new kinds of beets suited to American environment, and little was done by the young industry, the foreign supply being accepted as satisfactory. The impetus needed, namely, the development of beets definitely superior to foreign kinds when grown in the United States, was lacking. Experimental work of the Department in seed production became of special service, however, when this foreign supply was largely cut off during the World War. Beet-sugar companies were forced immediately into seed production to provide for a greatly expanded acreage. Serious shortages of seed limited the acreage of beets that could be planted for sugar production. Because of the haste with which the new seed-production ventures had to be pushed, many losses were incurred, yields of seed in many cases were low, and costs per pound were correspondingly high. The methods employed for seed propagation were closely patterned after the conventional European practices, but with little or no effort to improve quality or to obtain new strains of beets that might endow the enterprise with intrinsic value and permanence. Roots were grown in one season, lifted, siloed over winter, and reset the following spring. Because of high labor costs for the hand operations involved, and of losses of roots in storage pits by freezing, rotting, or drying, the methods followed were expensive. Yields ranged from a few hundred to about 2,000 pounds per acre, with 800 pounds representing a fair average. But the most discouraging feature was that, in spite of heavy expenditure of time and money, and a large acreage devoted to seed production, the quantity of seed resulting was relatively small.

Accordingly, at the close of the war period the sugar industry, while recognizing the desirability of a controlled seed supply, turned with relief to its former sources of seed as a simpler and more economical way of securing its annual supplies. From then until now all but a small portion of the seed used in the United States has been imported, about 70 percent coming from Germany. A few American companies have maintained a portion of their seed-production enterprise, continuing to produce a small percentage of their annual needs. One large company, using the conventional method, produced seed in the 1932–33 season on nearly 500 acres planted to "stechlinge," with an estimated yield per acre of 1,300 pounds.

Overwintering Method Succeeds

Experiments of the Department of Agriculture, begun in 1922 and carried on in cooperation with the New Mexico Agricultural Experiment Station, have shown that sugar-beet seed can be produced successfully in the southwestern part of the United States by taking advantage of the mild winter conditions and overwintering the beets in the field, thus avoiding lifting, storage, and resetting of the roots. This work has shown that sugar-beet seed, planted in 22-inch rows in highly fertile soil in early September, 18 pounds of seed per acre, gives a growth of plants large and sturdy enough to withstand in the field the winter conditions. The plants are left unthinned in the rows, and unless the field is very weedy only machine cultivation is required. Enough irrigations to keep the plants growing are given. When blooming begins in May or June, the irrigations are given at weekly intervals. Cutting, shocking, threshing, and cleaning follow the usual procedure (fig. 97). Yields greatly in excess of those obtained with the conventional method in other parts of the United States or reported from Europe have been obtained consistently. Since 1928 commercial trials on a scale large enough to permit accurate judgment have been made, so that it may safely be said that these highly satisfactory yields have been maintained.

FIGURE 97.—Harvesting sugar-beet seed in New Mexico from plants overwintered in the field. Contrasted with conventional biennial methods of beet-seed production, shorter occupancy of land and economies in labor requirements are outstanding advantages.

In southern Utah and southern California similar experimental work carried on by the Federal Department has shown that these areas are also available for producing beet seed by the overwintering method. The method, involving as it does a minimum of hand labor, and providing a rapid means of increasing a small supply of seed to a large quantity by two successive multiplications, apparently meets the problems previously encountered in producing sugar-beet seed in the United States.

Method Used to Produce U.S. No. 1 Seed

The new method was promptly put to service in making available to growers the results of the investigational work on the curly-top disease by which the curly-top-resistant variety of sugar beets, U.S. No. 1, was developed. A few hundred pounds of the seed of this resistant variety have been increased under supervision of the Department of Agriculture by interested commercial companies, approximately 22,000 pounds being harvested in July and August 1932. From this seed stock a further increase on approximately 450 acres was made in the 1932–33 season, when the yield approximated 1,100,000 pounds. This large supply of the U.S. No. 1 variety, adequate to plant 55,000 acres, will be used by growers in the 1934 season. Since the new variety is fairly resistant to curly top, it should, under all but the most extreme conditions, produce a satisfactory crop in spite of the disease. The experimental results show that under moderately severe conditions it maybe expected to outyield the European brands at least 4 tons per acre. Under noncurly-top conditions the variety apparently may be exceeded slightly in tonnage by commercial brands, but the U.S. No. 1 variety apparently has a higher sugar percentage, thus practically compensating for the tonnage difference.

In addition, strains of sugar beets known to be highly resistant to leaf spot have now been found, and tests of these strains and the production of foundation stocks are actively under way. The two coordinated projects emphasized by the Department—development of disease-resisting strains of beets to meet problems peculiar to America, and drastic modification of seed-production methods as a device to avoid the impact of foreign cheap labor—have gone hand in hand to permit the first stride forward on solid ground of an important new industry.

E. W. Brandes and G. H. Coons,
Bureau of Plant Industry.

Swine Erysipelas is More Easily Diagnosed by a New Blood Test

Contributing to progress in the eradication and control of livestock diseases, investigators of the Bureau of Animal Industry have found a new means of diagnosing swine erysipelas. This disease, which is prevalent in Europe, has been increasing in several States. It was first reported in the United States in 1921, by the Bureau of Animal Industry, United States Department of Agriculture, when the causative organism was isolated from skin lesions of the so-called "diamond-skin disease". Subsequently isolated cases of the disease in the acute form were encountered from time to time, but no distinct outbreaks of this malady were recorded until 1927, when acute swine erysipelas was detected in swine herds of South Dakota. Many animals were affected in the South Dakota outbreaks. More recently the disease has been found to exist in a number of States, particularly in the Middle West. Positive laboratory tests have been made of tissues gathered in outbreaks discovered in Colorado, Iowa, Nebraska, Illinois, Ohio, New York, and the viding a rapid means of increasing a small supply of seed to a large quantity by two successive multiplications, apparently meets the problems previously encountered in producing sugar-beet seed in the United States.

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The occurrence and character of the disease in South Dakota have afforded an excellent opportunity for a detailed study of the disease as it exists in this country. In that State during 1932 and 1933, outbreaks occurred in many of the counties east of the Missouri River and in two counties west of the river. The outbreaks were sporadic except during the spring of 1932, when in two districts they were widespread, especially among suckling pigs. During the spring of 1933, outbreaks were scattered, occurring principally in older swine.

The Disease Is Contagious

Recurrences of the disease on the same farms at yearly intervals, and sometimes longer intervals, indicate the enzootic character of the infection. It seems apparent from the reports of swine raisers that this disease existed on certain farms in South Dakota for a considerable period before it was recognized. The restocking of premises occupied more or less recently by animals affected with the disease has in many instances been followed shortly by outbreaks. Outbreaks have been observed also to occur in herds shortly after the addition of one or more animals which showed evidence of the disease in the chronic form. Observations point very clearly to the fact that infection is spread through contact of diseased and susceptible healthy animals.

Although swine erysipelas may attain marked virulence under herd conditions, it has been found very difficult to reproduce the disease experimentally in its typical form, regardless of the material or methods used in the exposure tests.

The uninterrupted course of the disease presents an acute and a chronic stage. The acute stage begins with high body temperatures, 106° to 108° F. or more, with only slight indisposition or change in normal habits. These manifestations ordinarily escape notice, but may be observed in cases where the disease can be studied in its spread through different herds or different lots of a herd. In the latter part of the acute stage there may be complete prostration, followed by sudden death. On the other hand, the disease may progress into the chronic stage without showing well-marked clinical symptoms. In the greater number of cases, however, clinical manifestations of diagnostic value rapidly develop in the latter part of the acute stage.

The mortality of this disease is comparatively high in some herds, and additional losses to herd owners result from the effects of the disease in the partially recovered animals, especially deformities, which frequently develop during the chronic stage.

In general, a post-mortem examination of an affected animal reveals the lesions of acute septicemia as evidenced by congestion and hemorrhage in certain organs and tissues with some specific changes attributable to swine-erysipelas infection. These changes are not sufficiently constant, however, to make them of distinct diagnostic value early in the acute stage of the disease. Until recently the veterinary practitioner was obliged to rely entirely on the herd history, clinical manifestations, and post-mortem findings, in making a diagnosis. He was often confronted with perplexing difficulties because of similarity of certain of the clinical manifestations and post-mortem lesions of other common swine diseases, as, for instance, hog cholera or infectious enteritis, which occur frequently as a complication in swine erysipelas.

Methods of Testing

The difficulties experienced by veterinarians in the field in differentiating between acute swine erysipelas and hog cholera, both clinically and on post-mortem examination, indicated the need of some kind of test that would aid in making definite diagnoses. Recent investigations in the pathological laboratory of the Bureau of Animal Industry have resulted in the development of an agglutination test of two types. One of these is a rapid agglutination tube method and requires the use of a laboratory in making a diagnosis. The other is a rapid, whole-blood or plate test (fig. 98). It requires but little equipment and, therefore, may be used by veterinarians in the field.

Each method requires a small sample of blood from the animal to be tested. The sample is then treated with a diagnostic agent known as antigen, which causes a definite reaction in the blood of an affected animal; the blood from a healthy animal shows no reaction. The technic of the plate test is similar to the rapid-blood test for pullorum disease of fowls. The antigen used for these tests is made from broth cultures of the swine-erysipelas organisms which are killed during the process of preparing the antigen. These methods, when carried out by veterinarians who are familiar with the technic, have been found very helpful in diagnosing swine erysipelas, both in the laboratory and in the field. The test is still considered, however, to be in the experimental stage, and more information is desired from the field on a large scale before the test can be advised for general use.

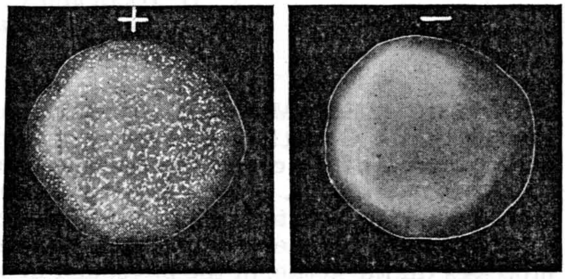

FIGURE 98.—Positive and negative results obtained by the rapid whole-blood test for swine erysipelas

A reaction to the test does not eliminate the possibility of hog cholera. Also, an animal that has once had erysipelas will react to the test for a period of time following the infection. Thus a hog that has recovered from erysipelas and is showing symptoms of hog cholera may show a positive reaction to the agglutination test. For this reason the attending veterinarian must have some information concerning the history of the herd from which the reacting animal came.

Procedure for Checking Spread of Infection

Swine owners are primarily concerned in checking the spread of the infection through herds. This can be accomplished, in some cases, by such sanitary measures as the separation of healthy animals from sick ones and the removal of these healthy animals to noninfected quarters, preferably clean pastures. This procedure is recommended even when specific treatment is to be used.

Hogs that are known to have swine erysipelas may be treated with a biologic known as anti-swine-erysipelas serum. It resembles anti-hog-cholera serum in appearance and has proved highly beneficial if administered early in the acute stage of the disease. Infected herds in which a high percentage of animals display acute symptoms may return to normal after serum treatment without the development of chronic manifestations. This serum is of very little value, however, when used in the chronic stage of the disease, and it is not recommended for use in such cases.

Swine erysipelas as a herd disease is apparently rather firmly established in certain sections of our country and presents a problem that deserves close attention. The Bureau of Animal Industry is studying the disease both in the field and in the laboratory. Experimental treatments are being conducted to determine with greater exactness the value of the serum and the limits of its practical usage. Success in combating the disease depends on close observation by swine breeders, veterinary practitioners, and livestock sanitary officials in order that outbreaks may be promptly detected and proper steps taken for their eradication.

C. H. Hays and C. F. Harrington,
Bureau of Animal Industry.

SWISS-CHEESE Making Depends Greatly on Control of Bacteria Bacteria are indispensable in the manufacture of Swiss cheese, but bacteria are also responsible for many of the defects in the cheese as well as for many of the troubles encountered in its manufacture. It is highly important therefore that the cheesemaker carry out all of the manufacturing processes (in the kettle, in the press, and in cold and warm cellars) in such a way as to insure the growth of the desirable bacteria, at the proper time and in the proper sequence, and to limit the growth of undesirable bacteria.

The cheesemaker attempts to carry out all these manufacturing processes properly, but unfortunately he usually does not know enough about the numbers of bacteria, the kinds, or their activity in the milk, in the starters, or in the cheese to be regularly successful in making good cheese. Too often he relies on rule-of-thumb methods worked out and handed down by generations of cheesemakers, and he hopes that he has used the right combination of milk, starters, and methods of manufacture.

The modern "culture method" of Swiss-cheese manufacture, however, which was developed by the Bureau of Dairy Industry after many years of investigation to establish the relation of bacteria in the manufacture and ripening of Swiss cheese, enables the cheesemaker to select the procedure to follow under the conditions at his factory.

In using this method the cheesemaker tests the milk to determine the number and kinds of bacteria in it. He thus obtains an idea of the ripeness of the milk and determines whether undesirable gas-forming bacteria are present in large numbers. He prepares pure cultures of bacteria for his "starters", one of a thermophilic or high-temperature streptococcus called *Streptococcus thermophilus*, and one of a lactic-acid forming, rod-shaped organism or lactobacillus, called *Lactobacillus bulgaricus* or *L. casei*. He adds these starters to the kettle milk. He grows and uses these starter bacteria in accordance with the results of tests made on the milk in the morning and on the cheese made the previous day. He also adds to the milk in the cheese kettle a pure culture of a lactate-fermenting, rod-shaped bacterium in which a high percentage of animals display acute symptoms may return to normal after serum treatment without the development of chronic manifestations. This serum is of very little value, however, when used in the chronic stage of the disease, and it is not recommended for use in such cases.

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The cheese kettle now contains the desirable starter bacteria, other bacteria that have little or no influence on the cheese, still other bacteria that may prove helpful if properly controlled or harmful if not controlled, and finally undesirable or harmful bacteria. Work in the Bureau of Dairy Industry has shown that of the starter bacteria, only the thermophilic streptococcus grows during the manufacturing processes in the kettle. Results have indicated that the growth of this starter organism helps restrain the growth of undesirable bacteria if the latter are present in moderate numbers.

The ordinary lactic acid bacteria of milk, such as *Streptococcus lactis*, and the gas-forming bacteria grow well if they are present in large numbers in the original milk. A limited growth of lactic bacteria in the milk before and during the manufacturing processes in the kettle gives a "ripeness" that may shorten the time of manufacture and may improve the quality of the cheese. Too much activity by these organisms will result in a cheese of poor quality with poor eye formation and with "glass" or cracks in the cheese. The presence and growth of large numbers of gas-forming bacteria, especially those of the *Aerobacter aerogenes* type, is likely to result in "blowing up" or "bloating" of the cheese on the press, or defects in the cheese later.

Effects of Heating in Manufacturing Process

During the manufacturing process the contents of the kettle are heated to 53°–56° C. (128°–133° F.) and held at that temperature, usually for about 30 minutes. Then the curd is dipped into the hoop on the press table, where it is kept well wrapped with cloths to prevent its temperature from dropping rapidly while the whey is draining from the cheese. This long exposure to a high temperature kills many of the bacteria. If the starter bacteria have not been properly prepared they will be killed or weakened and will be unable to do their work at the right time in the cheese; then other bacteria may grow, with results deleterious to the cheese. The *Streptococcus thermophilus* bacteria grow during all processes in the kettle and are the first to be active in the cheese on the press. If a properly prepared starter has been used, the streptococcus will not only grow during the processes in the kettle but will grow during the first 8 or 10 hours on the press and gradually increase the acidity of the cheese during this time. Methods have been developed for measuring the increase in acidity to obtain information in regard to the activity of the thermophilic streptococcus. The rate and amount of drainage of the whey from the cheese is influenced greatly by the activity of the streptococcus in the cheese during the early hours on the press.

A properly prepared *Lactobacillus bulgaricus* culture, when used as a starter culture, begins growth in the cheese after it has been on the press for 8 to 10 hours and continues to grow and increase the acidity until practically all of the milk sugar or lactose in the cheese has been broken down, chiefly to lactic acid. A poor starter culture will begin growth much later than a good culture, will produce acid too slowly, and will leave much unchanged milk sugar in the cheese after 21 hours on the press. *L. bulgaricus* should pick up the conversion of milk sugar to acid about the time that the growth and action of *Streptococcus thermophilus* begins to slow down.

The temperature of the cheese on the press has considerable influence in determining when the starter bacteria will begin to develop. The temperature of the freshly dipped curd may be high enough to slow down the action of even the high-temperature streptococcus. The rod-shaped or lactobacillus starter bacteria do not begin to grow until the cheese has cooled down sufficiently. *Lactobacillus casei* can start growth at a higher temperature than can *L. bulgaricus* and usually begins to grow after the cheese has been on the press for about 5 hours. This difference in the two kinds of *Lactobacillus* starters is used in a practical way. *L. casei* is useful in helping to keep down gas-forming bacteria when they are present in large numbers. The more slowly developing *L. bulgaricus*, however, is preferable with good milk; for a cheese with better texture and flavor is likely to result.

Action of Starter Bacteria of Great Importance

The action of the starter bacteria on the cheese in the press is of great importance in determining the quality of the finished product. The early action of the *Streptococcus* keeps down the growth of undesirable bacteria, controls the draining of the whey from the cheese, and carries on the destruction of milk sugar with the formation of lactic acid until the *Lactobacillus* takes up the work. The *Lactobacillus* continues the decomposition of milk sugar until it has all been destroyed and at the same time suppresses the growth of undesirable bacteria. Both kinds of starter bacteria influence the texture of the cheese in the press and later on, and both have an influence on the eye formation and flavor development which takes place later in the cheese. These bacteria finish their growth soon after the cheese leaves the press, but even after their death, the enzymes from their cells continue to act on the cheese.

After the starter bacteria have completed their work, no fermentable sugar remains in the cheese, for the milk sugar has been converted to lactic acid which acts on some of the salts of the cheese to form salts of lactic acid called lactates.

After the removal of the cheese from the press it is held in the cold room at 10° to 15° C. (50° to 60° F.) for 10 to 14 days, during which time the cheese is salted by immersion in the brine tank or by having salt rubbed on the cheese surface. The salting lasts only 2 or 3 days. The cheese cools, and any growth of starter bacteria that might have continued is stopped.

The cheese is then removed to the warm or fermentation cellar, which is held at about 23° C. (72° F.). There the bacteria able to ferment lactates do their work, with the consequent production of eyes and a characteristic flavor. Certain species of these bacteria are able to change the lactates to propionic acid, acetic acid, and carbon dioxide gas, together with small amounts of other substances. The texture of the cheese should by this time have become rubbery, and the gradually formed carbon dioxide gas should collect in the cheese and blow spherical holes or "eyes" in the rubbery cheese curd. When the cheesemaker judges that these eyes have developed sufficiently he moves the cheese back into the cold room and thus slows or stops gas production by the lactate-fermenting bacteria.

Three Types of Bacteria Predominate

Many kinds of lactate-fermenting bacteria have been found in Swiss cheese, but work in the Bureau of Dairy Industry has indicated that three types usually predominate. Usually the first to appear is a rod-shaped bacterium which resembles a *Lactobacillus* in many ways. These bacteria often grow considerably in the cheese on the press and reach large numbers before the cheese is taken to the cold room. Maximum numbers are present just before or at the time of the start of eye formation, and thereafter there is a gradual decrease in numbers. They are followed by a spherical organism, which usually occurs in groups of four cells and is therefore termed a tetracoccus. The tetracoccus attains maximum numbers before the development of eyes is complete and gradually decreases in numbers thereafter. The third lactate-fermenting bacterium to appear in large numbers is *Propionibacterium shermanii,* which was added with the other starter bacteria to the milk in the cheese kettle. This organism usually increases slowly during the first weeks in the warm room and only reaches maximum numbers at the time the eyes are fully formed or later. This bacterium apparently has little to do with the start of eye formation but may help to increase the size of the eyes; it is most important, however, in the development of the characteristic Swiss-cheese flavor. The tetracoccus and the lactobacilluslike rod are usually the ones chiefly concerned in eye formation. Experiments have shown that eye formation takes place in the absence of *P. shermanii,* but that the cheese does not have the characteristic flavor of good Swiss cheese.

When the cheese is moved from the warm room to the cold room it cools slowly, the lactate-fermenting bacteria have a slower rate of growth, the cheese loses its rubbery texture, and becomes more crumbly or "shorter." In the cold room the enzymes released from bacterial cells continue to function, and the flavor and texture improve. Up to certain limits the longer the cheese is held, the farther the ripening proceeds. In Switzerland the cheesemakers usually hold their cheese until it is 5 or 6 months old.

The addition to the milk of too many of any of the bacteria important in cheesemaking will cause troubles or defects in the cheese. Too many thermophilic streptococci will cause too rapid drainage of the cheese in the press and produce too many eyes in the cheese. Too many lactobacilli and too few thermophilic streptococci produce a cheese with few and small eyes and cracks in the curd. Too much *Propionibacterium shermanii* culture causes too many eyes in the cheese; too few of these bacteria mean a cheese which lacks in flavor. Too many of the other lactate-fermenting bacteria give the cheese an undesirable flavor and may cause too many eyes. Use of cultures of the proper organisms under conditions which insure their optimum numbers at each stage of development of the cheese gives the best product. It is the object of the pure-culture method to insure that desired balance of kinds and numbers of bacteria.

W. C. FRAZIER, *Bureau of Dairy Industry.*

TAX Relief for Farmer Touches Public-Finance Problem as a Whole Farmers have sought for years to reduce farm taxes by shifting a part of the cost of government from themselves to shoulders more able to bear it, but their efforts have not been conspicuously successful. Average farm real estate taxes per acre of all land in farms in the United States increased from 51 cents in 1920 to 58 cents in 1929, and at no time during the period was there a decrease.

After 1929 the tax declined until in 1932 it stood at 46 cents per acre, or 22 percent below the 1929 level. This reduction followed closely and resulted principally from a collapse of prices. While average farm real estate taxes per acre were falling 22 percent, the index of farm prices declined 59 percent and the tax per $100 of value increased 26 percent because the fall in land value was greater than the fall in taxes. Hence, the burden of farm taxes was not reduced; it was increased. Furthermore, the reduction in tax per acre was brought about chiefly by curtailing services and reducing salaries of school teachers and other public servants.

Though during the last 3 years there have been new and additional levies upon gasoline, general sales, and income, the revenues therefrom have been used mainly to meet the need for emergency expenditures and otherwise to help balance budgets. In States in which these taxes were used to replace a part of the property tax, it appears that the substitution has also served partly to reduce pressure for budget cutting rather than entirely to reduce property taxes.

Failure to reduce farm taxes greatly by revision of the revenue system does not mean that it is impossible, nor does it mean that farmer efforts to shift a part of the tax burden have failed. The farm-tax problem, broadly interpreted, is not merely a tax-reduction problem; it is also a problem of how to reduce the farmers' share of total taxes. If the introduction of a new source of revenue prevents farm taxes from rising to otherwise higher levels, or makes available to farmers desirable governmental services they otherwise would not receive, nonfarming groups are at least assuming an increasing share of the total tax burden. Thus interpreted, the farm-tax problem relates not only to the cost of governmental service but also to the quantity and quality of such service; it becomes the whole field of public finance from the point of view of the farmer.

Farmers' Interest in Governmental Economy

Besides an interest in reducing his share of the cost of government, farmers have the same interest in governmental economy as have all taxpayers. The stress of economic depression has forced a reduction in public expenditures, but has only slowly brought to public attention the fact that it makes a great deal of difference by what methods the reduction is brought about. Apparently there are at least three general ways for local governments to economize: (1) By curtailing services, (2) by reducing salaries of public servants and avoiding the payment of unreasonable prices for materials purchased, and (3) by consolidating governmental units and centralizing administration. The first two of these three methods have been used generally during the last 3 years; the third has been used little but has been much discussed.

Public authorities and students of public finance point out the need for reallocating functions among the various units of local government and the State, and for reducing the number of units by consolidation or other means. It is contended that such changes would afford a great opportunity for either a reduction of farm taxes without any impairment of present services or an improvement in services without an increase in taxes.

To test this contention, the Bureau of Agricultural Economics is assembling facts for representative local-government situations. The first study was made in Washburn County, Wis., in cooperation with the Wisconsin Agricultural Experiment Station. Results indicate that 10 percent of the cost of local government could be saved by: (1) Substituting a rural county-unit school system for the present district system, (2) transferring township-road administration to the county, (3) consolidating the county with two adjoining counties, and (4) consolidating or abolishing townships. If the possible savings from these changes should be used entirely to reduce local taxes, the farmers' tax bill might be reduced as much as 20 percent. This arises from the fact that a large proportion of the cost of local government in Washburn County is derived from State aids. It is highly questionable, however, that the aids would or should remain unchanged; and it is even more doubtful that all the saving would be used to reduce taxes. There is at least a good chance that a part would be used to improve services. The conclusion, therefore, is that although the possible savings from these adjustments are important, the extent to which farm taxes would be reduced is somewhat open to question.

Objections Raised to Centralization

Inertia is the principal reason local government is not likely to be reorganized quickly. The existing system is old, the people are accustomed to it, and the vast majority have given little thought to the possibility or desirability of changing it. Among those who have given thought to the matter, some are not sure that to do without the possible saving is too high a price to pay for retaining the present system. Home rule, it is claimed, is worth something. Many readily admit that the present system at its best is less efficient than the more centralized form might be, but they question whether it is less desirable. Furthermore, they are not sure that the possible savings would actually be realized. It is pointed out, for instance, that there is no guarantee that any form of government will be more efficient than any other form; and that although the more centralized forms offer possibilities for greater efficiency, they may easily become the more burdensome to taxpayers if controlled by persons whose actions are not motivated by high ideals of public service.

The Wisconsin study should be supplemented by similar studies in other areas, and the possibilities of even more radical changes should be considered. State centralization of the school system, as recently adopted by North Carolina, is an experiment that is being watched everywhere with interest. Perhaps State centralization is a more hopeful method of reducing costs than is consolidation of local units. State highway systems, for example, might be further enlarged to include more of what now constitutes the county and township systems. Virginia and North Carolina have transferred the administration of county highways to the State. A promising intermediate step was taken by Indiana when it transferred the administration of township roads to the county.

By whatever means the efficiency of local government is increased, State action is likely to be involved. This is especially true in States in which a large part of the local costs is defrayed by State aids. State-aid laws will have to be so revised as not to prevent desirable action on the part of any local unit. In Wisconsin, local units could not at present make the proposed changes analyzed in the reported study without a loss of State aids amounting to more than the possible savings from reorganization. The character of the revisions in State-aid laws will depend upon State policy. Revisions may be such as to force action on the part of a reluctant minority of local units, or they may merely remove existing barriers to possible voluntary local action.

BUSHROD W. ALLIN,
Bureau of Agricultural Economics.

TERRACES Effective for Controlling Erosion on Cultivated Land A large part of the crop land of the United States must be protected from the erosive action of rainfall if it is to remain permanently in profitable production. Erosion is not uncommon on ground slopes of less than 5-foot fall in a distance of 100 feet; yet in some places lands of 10 times this

FIGURE 99.—A broad-base Mangum terrace. With terraces of this type, the whole field can be planted to a clean-cultivated crop and farmed as a unit.

degree of slope are being cultivated. Tillage destroys the natural vegetal protection and loosens the soil so that it is especially susceptible to erosion. The fertile topsoil must be held on the field by protective measures that interfere as little as possible with the cultural operations necessary to keep the soil in suitable condition for plant growth and to control weed and insect pests.

That terracing is a practical and effective method of controlling soil erosion, whereby all of the land in a field can be safely cultivated, has been demonstrated on the Department's soil-erosion experiment

By whatever means the efficiency of local government is increased, State action is likely to be involved. This is especially true in States in which a large part of the local costs is defrayed by State aids. State-aid laws will have to be so revised as not to prevent desirable action on the part of any local unit. In Wisconsin, local units could not at present make the proposed changes analyzed in the reported study without a loss of State aids amounting to more than the possible savings from reorganization. The character of the revisions in State-aid laws will depend upon State policy. Revisions may be such as to force action on the part of a reluctant minority of local units, or they may merely remove existing barriers to possible voluntary local action.

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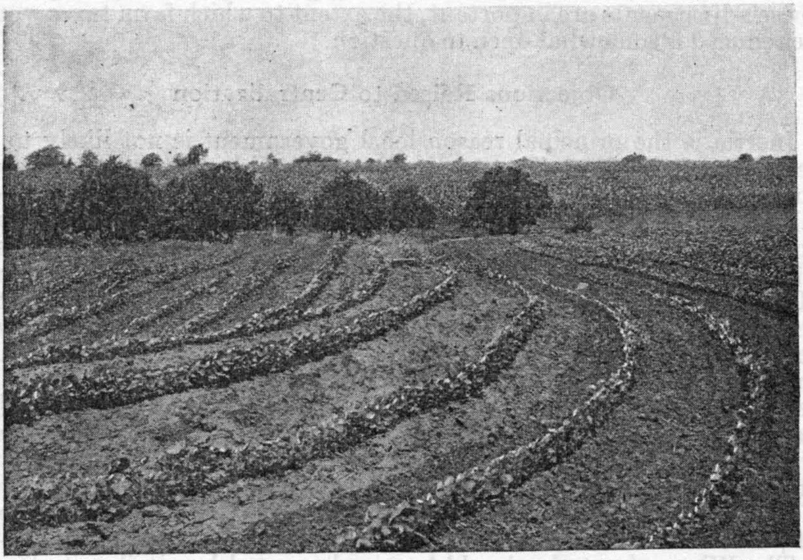

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That terracing is a practical and effective method of controlling soil erosion, whereby all of the land in a field can be safely cultivated, has been demonstrated on the Department's soil-erosion experiment stations (fig. 99). At the Red Plains station, near Guthrie, Okla., the loss of soil during 1932 from an unterraced area with a slope of about 5 percent was 88 tons per acre, whereas the loss from a terraced area with about the same land slope was 4 tons per acre. Both areas were similarly cropped, being fallow until May 15, in cotton until October 15, and in winter wheat the remainder of the year. The rate of soil loss from the terraced area was only 4½ percent of that from the unterraced area. On the experiment farm at LaCrosse, Wis., terraced land planted to barley lost less than 150 pounds of soil per acre during two rains totaling 3½ inches, and the unterraced land similarly cropped lost 3.56 tons per acre, the loss from the terraced land being 2 percent of that from the unterraced land. Land planted to wheat at the experiment station near Bethany, Mo., lost, during one rain of 1.17 inches, only 60 pounds of soil per acre from the part protected by terraces but lost 2,100 pounds per acre from the unterraced portion.

Prevention of Gullying

The foregoing results illustrate the effectiveness of terraces in controlling sheet erosion. Terraces are equally effective in controlling and preventing the development of gullies. It has been observed that terracing generally improves fields for the operation of farm machinery by making the ground surface smoother. Gullied fields often must be divided into two or more parts because the gullies cannot be crossed safely with farm machinery. The land in such a gully and a strip on each side cannot be successfully farmed. Terracing such a field reclaims all of the land for cultivation and facilitates the use of farm machinery. Figures 100 and 101 are views of a field on the soil-erosion experiment farm at Guthrie, Okla., before and after terracing. Before terracing the gullies were 3 to 8 feet deep and about 200 feet apart, and could not be crossed with teams or farm machinery, which necessitated the practice of farming the field in narrow strips between the gullies. The gullies were enlarging each year, were increasing in number, had lowered the ground-water table, and would soon have caused abandonment of the entire field because of loss of practically all the fertile topsoil. Small brush dams, as shown in figure 100, were built in the spring to assist in filling the gully with eroded soil, and the land was terraced in the fall. After the terracing, the gullies soon disappeared, and the field could be crossed anywhere with farm machinery.

FIGURE 100.—A gully in which brush dams have been built to cause deposition of sediment carried by the water.

Terraces are instrumental in building up and improving the fertility of the soil by retaining organic matter and applied fertilizer that otherwise is soon carried off the field and deposited in drainage channels. A farmer in Mitchell County, Tex., reports that terracing a 40-acre field caused it to produce as much in 3 years as it formerly did in 6 years. Before the land was terraced it had never produced more than 10 bales of cotton per year. After the terracing it produced 58 bales in 3 years, which is practically as much as it previously yielded in 6 years.

Terraces conserve the rainfall and make it available for crops, thus effecting substantial increases in crop yields. Terraced rolling land on a farm in Borque County, Tex., yielded 37½ bushels of corn per acre in 1929, when similar land unterraced, receiving the same treatment, yielded only 22½ bushels per acre, and the difference in yield was attributed to the moisture retained by the terraces. The effect upon crop

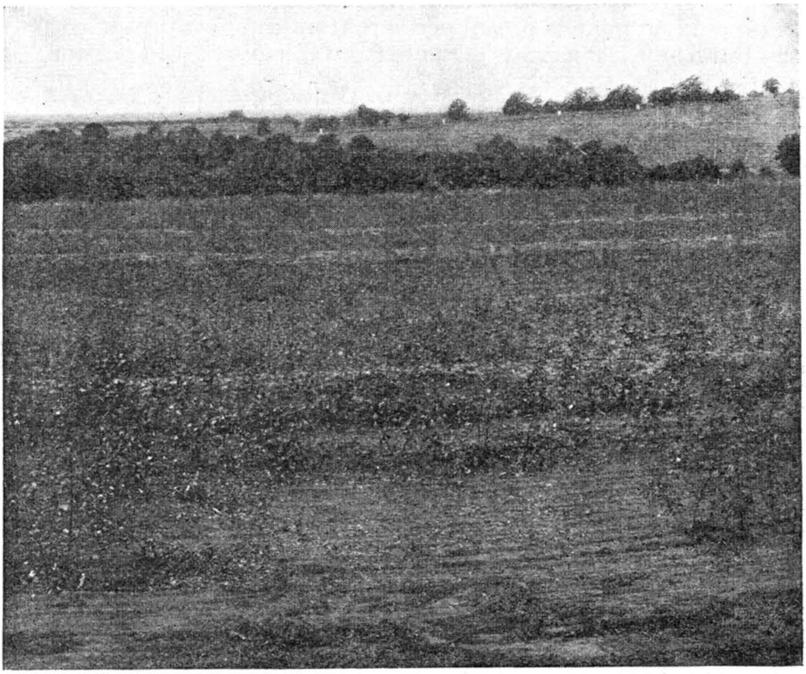

FIGURE 101.—Cotton growing over the gully pictured in figure 100 after terracing.

yields of conserving moisture by terraces was demonstrated on a farm in San Miguel County, N.Mex. There terraced land yielded 700 pounds of beans per acre, as compared with 400 pounds per acre on unterraced land, and a corn crop on the terraced land was practically double that on the unterraced land.

Clean Cultivated Area Not Reduced

Terraces not only minimize erosion on cultivated lands, conserve moisture, and cause increased crop yields, but they do so without reducing the area that may be used for clean cultivated crops, such as corn and cotton, and without interfering appreciably with customary farming practices. The cultivation of fields in large units is economical of labor and of time, facilitates control of weeds and insects, and is conducive to low-cost crop production.

CHAS. E. RAMSER,
Bureau of Agricultural Engineering.

THINNING Plantations in Nebraska Forest Provides Fuel and Improves Stand The Nebraska National Forest was established in 1902 for the purpose of determining the practicability of growing forests on the rougher portions of the Nebraska sand hills and of supplying wood for the large number of farms and ranches in this rapidly developing part of the country. Up to June 30, 1933, 13,028 acres of coniferous trees had been successfully established on this forest. The first plantations were set out in 1903. During the earlier years of experimentation with species and methods the survivals were poor, and it was necessary to plant the trees close together in order to obtain a stand. From 1909 to 1911, inclusive, trees were planted 2 feet apart in rows about 6 feet apart. Weather conditions were favorable, and excellent survivals resulted. Consequently, these forest plantations became overcrowded, and by 1920 it was evident that they would have to be thinned.

Thinning a growing forest is as essential to maintaining proper growing conditions as thinning is to any other agricultural crop where spacing of plants is important in obtaining the maximum yield. A number of experimental thinning plots were established in 1920 and 1922 in stands of jack pine (*Pinus banksiana*) and Scotch pine (*P. sylvestris*), planted in 1910 and 1911 (fig. 102). Periodic growth measurements of the trees left showed that both the greatest average diameter and height increases were made on the plots with approximately 700 trees per acre.

FIGURE 102.—Planted in 1916, this jack pine plantation was thinned to 850 trees per acre in 1931. The material removed was used for fuel wood.

With this information, extensive thinning was placed on a more scientific basis. In the winter of 1929–30 thinning was first undertaken on a large scale by six forest rangers. During that winter 44 acres were thinned and pruned, and 170 cords of wood were sold to local citizens, mostly for fuel. Some of the larger stems were used in fences and other general repair jobs.

The work of 1929–30 demonstrated that the local market was ready to absorb a great deal more wood than could be cut with ranger labor. Moreover, the area which needed immediate improvement cuttings was too large to be taken care of in the limited available time of the forest personnel. Accordingly, during the winter of 1930–31, a method was devised of having the actual cutting and trimming work done by local citizens, and 7 acres of plantations were thinned and pruned.

Increased Demand for Fuel Wood

During 1931 the generally depressed economic conditions became more noticeable in this locality, and a greater demand developed for fuel wood from the forest. In many homes funds were not available to purchase fuel. Under national-forest regulations, the sale or free use of timber which should be removed to improve growth conditions is permitted. On this basis, free administrative-use permits are now issued to 37 applicants. The permits provided that the permittee must prune the lower branches to a height of 8 feet above the ground before any trees would be marked for cutting by the district ranger. All brush resulting from the cutting was scattered evenly over the area, except that cleared lanes were left between every fifth and sixth row of trees. In return for pruning the trees left on the area and for cutting such trees as the best silvicultural practice dictated, the permittee was given all material resulting from the thinning and pruning, except limbs that were less than 1 inch in diameter. During the last two winters, 102 permits have been issued to 30 different people, and 235 acres of plantations have been placed in better silvicultural condition. About 700 cords of wood were received by the men doing this work. The cost to the Government of thinning the plantations under this system amounted to $5.66 an acre in 1933.

Through administrative free use, the thinning of the plantations now seems assured at very little additional investment. In many of the older plantations the struggle for existence between the trees has become serious, and some trees must be removed to maintain maximum growth. It is estimated that 1,000 acres are in need of thinning. Under the arrangement described, the farmers, in the vicinity of the forest and the forest alike are benefited. The forest receives needed thinning at little cost, and the farmer obtains a supply of fuel and general wood free, except for labor and transportation.

A. L. Nelson, *Forest Service.*

TIMBER from the Farm Woods has New Markets in the Pacific Northwest

Cutting back the virgin forests farther and farther from the centers of population in the Pacific Northwest has resulted in opening new markets for farm timber for the manufacture of so-called minor products. A recent survey in Oregon and Washington shows that minor products have an annual sales value of $16,500,000, while in volume they make up about 11 percent of the timber utilized each year. It is also evident that for raw material, manufacturers are depending more and more on second-growth stands. Almost without exception this means stands of rather limited area, such as are owned by individuals rather than by corporations.

In former days, when virgin timber was near at hand, the major portion of the demand for poles, piling, posts, fuel wood, pulpwood, mine timbers, ties, excelsior wood, and so on, was met by the large was too large to be taken care of in the limited available time of the forest personnel. Accordingly, during the winter of 1930–31, a method was devised of having the actual cutting and trimming work done by local citizens, and 7 acres of plantations were thinned and pruned.

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In former days, when virgin timber was near at hand, the major portion of the demand for poles, piling, posts, fuel wood, pulpwood, mine timbers, ties, excelsior wood, and so on, was met by the large operators. Practically the only outlet for timber from the farm woods was the farm itself. But times have changed. The increasing haul to market and the depletion of large timber tracts near farming communities have opened local markets of which the farm timberland owner can and is availing himself. The saw-log demand is still met principally by the large operator because of the necessity for special equipment to handle this product economically. But minor products are being handled more and more by the small producer. Some of these products require no special equipment for handling; others require but little. For all of them the specifications are rather simple and flexible. All can be easily marketed either directly to the consumer or to a nearby wholesaler. All are paid for in cash upon delivery. Most of them are best harvested during the season when other farm work is slack, thus providing a profitable use for labor, teams, and trucks. Couple these advantages with the fact that practically all of the minor forest products can be made satisfactorily from thinnings or material the cutting of which results in improvement rather than depletion of the stand, and the result is an easy and steadily profitable crop for the farm owner to handle.

It has been shown in every forested region of the country that properly executed thinnings which give each tree the ideal amount of growing space will speed up the tree growth. Under intensive management, it is possible to get about half again as much timber volume out of a stand in which thinnings are made at regular intervals as from an unthinned stand at maturity.

Among the products that thinnings will provide, fuel wood, pulpwood, and fence posts find so ready a local market and require so little equipment for handling that they are worthy of detailed discussion.

Fuel Wood

Wood is the principal source of fuel in Oregon and Washington, not only in rural districts but in the towns and cities as well. The sawmills and other wood-using industries provide hogged fuel and sawdust for domestic heating and commercial steam production. Although the shortage of suitable fuel-wood supplies and their greater cost have increased the use of coal, oil, gas, and electricity in the cities, still it is no unusual sight during the summer months to see residential streets in Portland lined with stacks of cordwood later to be sawed to stove lengths and stacked in cellars.

The species used for fuel wood in any section is determined primarily by the species available and only secondarily by the fuel value. Because of its abundance, for instance, Douglas fir furnishes over three quarters of the forest fuel wood consumed annually. Of this amount, nearly half comes from second-growth trees potentially valuable for saw timber. Most of the cordwood is cut by small, independent operators with an annual output of from 100 to 500 cords, but increasing amounts are being produced by farmers during the season when their labor cannot be used at other work.

The wood may be sold directly to the consumer, but near the cities most of the fuel-wood business is carried on through established fuel dealers. There seems to be no reason, however, why the farmer who is anxious to develop his fuel-wood market in nearby cities cannot do so. If a reputation for promptness and reliability is built up with a few customers, such a business will almost automatically increase.

Pulpwood

During the period from 1925 to 1930 the rated capacity of the pulp mills in the Pacific Northwest increased more than 100 percent, thus doubling the wood requirements (fig. 103). Until recently, pulpwood supplies were purchased largely in log form, but the last 5 years have shown a marked increase in the use of slab wood and other mill waste and the use of forest wood in cordwood form. About a quarter of a million cords of pulpwood valued at $2,000,000 was used in 1930. Since then a larger proportion of the pulp-mill supplies has been made up of forest wood, primarily because the curtailed production of sawmills does not supply sufficient amounts of mill waste. Western hemlock furnishes over 50 percent of the forest pulpwood, the "balsam firs" about 25 percent, and the remaining quarter is made up of sitka spruce, black cottonwood, and Douglas fir.

FIGURE 103.—Pulpwood delivered on a sled to the contractor, who trucks it to the mill.

Fence Posts

Fence posts, both round and split, have long been staple returns from small woodlands. They are used on the farm, in nearby towns and cities, and by railroads and highways along right of ways. Many of them are sold directly by the producer; others are marketed through established dealers, especially in the larger cities. In 1930 over 4,000,000 posts were produced in Oregon and Washington. About half of these were marketed; the rest were cut by farmers for their own use. Western red cedar is the preferred species because of its durability. Where this species is not available, oak, juniper, larch, Douglas fir, and pine are used.

The Pacific Northwest farmer with a tract of woods on his farm has an asset worthy of development. Some study of the situation and inquiry in nearby centers will make clear the type of product which can be profitably marketed in his locality. Tall, straight trees which must be removed to provide growing space for others may be used for poles and piling. Some trees or portions of them may be suitable for shingle bolts or veneer bolts; others may provide mine timbers or excelsior bolts. Extension agents and Forest Service employees are ready to give advice as to methods of improving the wood lot through thinning. Idle forest acres bring no income. They can be made to pay their way.

H. M. JOHNSON, *Forest Service*.

TOBACCO-DISEASE Control Necessitates a Wide Variety of Measures Diseases, while always a serious problem in tobacco culture, have caused increasing losses in recent years. This has been due to an extensive spread of old troubles such as root knot and also to the appearance of diseases entirely new to this country, such as mildew, wildfire, and black shank. Omitting mention of relatively minor troubles,

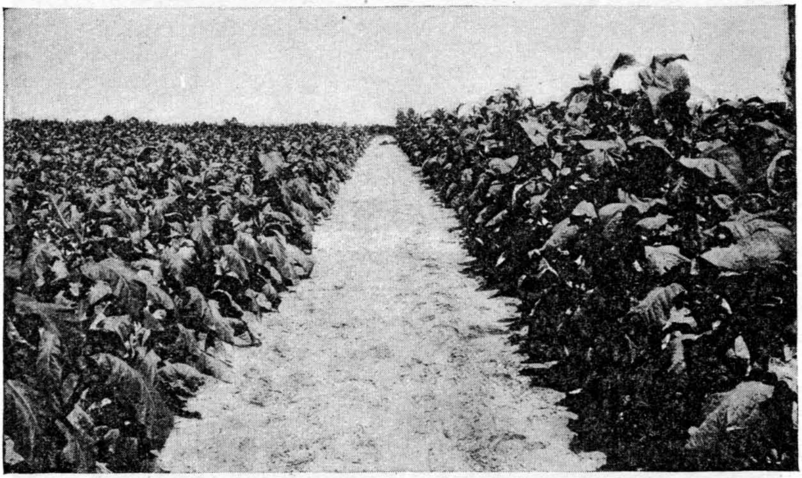

FIGURE 104.—Effect of rotation on root knot. On the right is tobacco after 2 years of peanuts, with no evidence of root knot. The tobacco on the left followed 2 years of sweetpotatoes, and the plants show reduced growth and wilting of the leaves, both of which are evidence of severe root-knot injury.

our growers at present must contend with no less than four serious root diseases—root knot (*Heterodera radicicola*), black root rot (*Thielavia basicola*), brown root rot, and Granville wilt (*Bacterium solanacearum*). There are also five destructive leaf diseases—mildew or blue mold (*Peronospora* sp.), black fire (*Bact. angulatum*), wildfire (*Bact. tabacum*), drought spot, and mosaic.

Because losses from tobacco diseases vary so greatly with weather conditions, it is impossible to predict in advance the damage they will cause. In 1933 the mildew was widespread but only moderately destructive, while in 1932 it was the major factor in reducing the crop of flue-cured tobacco by some 300,000 acres. Troubles, such as mosaic, though widespread, are less conspicuous in their effects, because they do not kill the plants. The quality of a mosaic crop may be reduced as much as 60 percent, however.

The number and diverse nature oi tobacco diseases necessarily require a wide variety of control measures. Among these, special crop rotations have been found most effective in combating root diseases that are soil-borne. Root knot, which is very destructive to tobacco, for shingle bolts or veneer bolts; others may provide mine timbers or excelsior bolts. Extension agents and Forest Service employees are ready to give advice as to methods of improving the wood lot through thinning. Idle forest acres bring no income. They can be made to pay their way.

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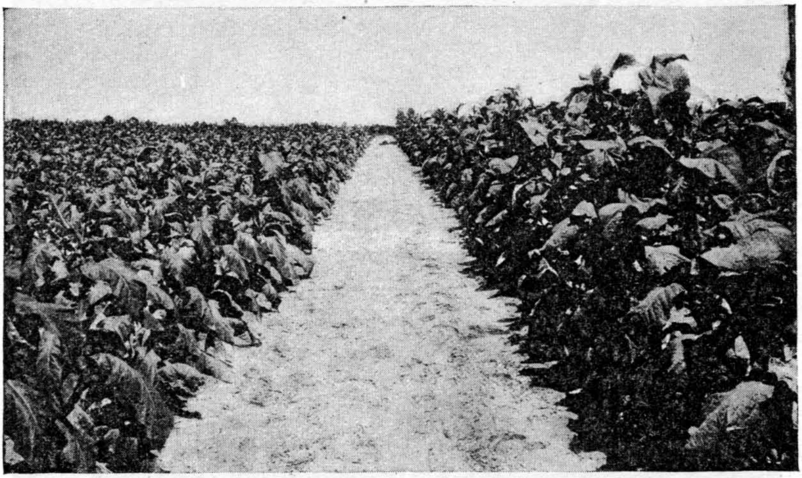

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FIGURE 105.—Control of mildew or blue-mold disease through temperature regulation: *A*, The plants were grown in a bed heated at night to maintain a temperature of 70° to 75° F. These plants remained healthy. *B*, The plants were grown in an adjacent bed without heat. All the foliage of these plants was either destroyed or severely injured at the time of the main disease attack, which occurred 11 days before this photograph was taken. It will be noticed that some leaves have been removed from the plants in *A*. This was necessary because of their proximity to the heating wires.

also attacks many other crops. It has been found that many crops considered to be root-knot resistant, however, cannot be used on diseased land in a tobacco rotation because they carry over abundant infection, even though not injured themselves (fig. 104). Out of many tested, a few nearly immune crops have been selected which can be used successfully on diseased land in a 3-year rotation with tobacco. One of the very best rotations was peanuts followed by oats the second year and tobacco the third. Similar work with Granville wilt and black root rot has established lists of immune crops that may be rotated with tobacco on lands affected by these diseases. For root-rot control the maintenance of a suitable soil reaction has also been found helpful.

Plant-Bed Sanitation Important

Many serious disease epidemics trace back to infections introduced while the plants are still in the bed, and these losses can largely be prevented by strict attention to plant-bed sanitation. (1) It is essential that the grower either select a healthy virgin-land location for the plant bed or else thoroughly steam-sterilize the old site. Refuse tobacco should not be used on the beds, nor should they be located near curing barns. (2) Since disease germs may remain alive on old boards or cloth, any old materials must be disinfected before being used. (3) Seed treatment should be practiced to destroy infection carried with the seed. (4) To avoid the chance of introducing mosaic, the grower should not work in his plants when he has been either sorting or chewing old leaf.

Nutrition as modified by fertilization and the practice of topping has been shown to have a marked effect on the susceptibility of tobacco to injury from leaf diseases, such as wildfire, black fire, and drought spot. The untopped plants are very resistant to these troubles. Low topping, especially in combination with high nitrogen fertilization, induced extreme susceptibility. Low nitrogen fertilization reduced leaf-spot injury, while low potash fertilization increased it.

The development of disease-resistant varieties gives great promise in the control of black root rot. Resistant selections have been secured of the burley, Havana, flue-cured, and Maryland types. Years of testing are required before these strains are released for general use, however, as it is essential that the resistance be combined with the exact leaf quality desired for the type.

Regulation of environment gives promise of solving the mildew problem, since experiments indicate that healthy plants can be produced by maintaining a night temperature above 70° F. during the critical period (fig. 105).

E. E. Clayton, *Bureau of Plant Industry.*

TREE Nursery Developed to Meet New Planting Program in Lake States In the fall of 1933, 12,000,000 trees became available at the forest nursery at Rhinelander, Wis., for planting in the national forests of Wisconsin and the Upper Peninsula of Michigan. The nursery was established in 1931 to meet the need for stock demanded by the new planting program developed by the establishment in Wisconsin of units for the purchase of land for national-forest purposes and the rapidly increasing amount of land purchased in other units in the Lake States, together with the passage of the Knutson-Vandenberg Act.

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Rhinelander, located on a network of State highways and two railroads, was selected as the location of the new nursery after a thorough investigation of the various sites offered. The good transportation facilities afforded were given considerable weight in its selection.

The nursery was established on a 20-acre tract of suitable soil donated to the Federal Government by Oneida County. The tract was

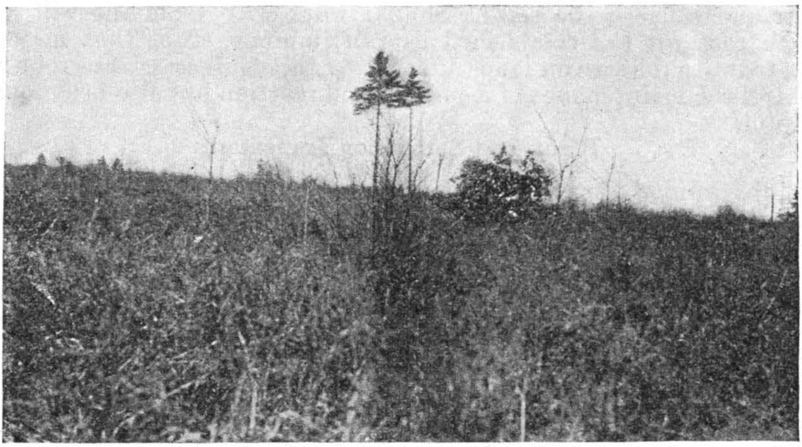

FIGURE 106.—Nursery tract before development work was begun.

wild land, originally supporting a heavy growth of white pine but more recently supporting a young second growth of brush and inferior broad-leaf species (fig. 106). Before starting any work, a complete plan of the development was prepared. The plans included clearing and breaking the land and putting the soil in shape for production, road construction to make the area accessible and the nursery operation more economical, windbreak protection, and the location and con-

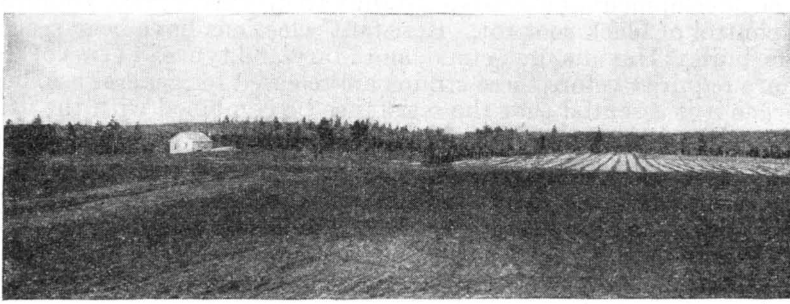

FIGURE 107.—General view of the nursery in October 1931, showing the progress of development work. Warehouse in left background.

struction of necessary improvements such as a warehouse, a pumping plant, fences, and an overhead water system. Since 2-year-old seedling stock is suitable for planting in the Lake States region, production at the nursery was planned on this basis. The usable seed-bed area was therefore divided into three blocks of approximately equal size. When the nursery is in full regular production, one block will be producing first-year seedlings, one block second-year seedlings, and the third block will be in green-manure crops for maintaining soil fertility.

Development work started on April 1, 1931, with the purpose of putting at least the first block in shape to be seeded in the fall. The brush was cut and the stumps blasted on approximately 17½ acres. A 15–30 tractor and a heavy 20-inch brush-breaking plow were used in the initial breaking of the soil. Block 1 was given intensive cultivation and the soil was in excellent condition for the seed beds, which were sown in October (fig. 107). Blocks 2 and 3 were sown to a cover crop of rye.

The water system, including a pump house, centrifugal pump, 1,925 feet of 3-inch distribution main and overhead lines operated by hydraulic motors, has been installed complete. The pumping unit consists of a 35-horsepower gasoline motor, connected to a centrifugal pump cabable of delivering 200 gallons of water per minute at a pressure of 45 pounds. Water from a lake passes by gravity through a sand and gravel filter to a reservoir, from which it is pumped. The system is designed to deliver a maximum of one fourth inch of water over an entire block daily. During periods of normal precipitation, less water will be used.

Capacity Production in First Year

The work planned for the first year was fully accomplished, and the nursery was placed on a capacity production during the first year of its development. The major improvements accomplished during the year include the construction of 0.6 mile of road, the fencing of the entire area, clearing and breaking the usable area, completing the water system for the first two blocks, building the warehouse and two latrines, planting a windbreak around the exterior, and hedges on interior block lines, the laying of 133,000 square feet of hardware cloth for protecting seed beds from birds and rodents, and making 27,000 feet board measure of seed-bed frames and stakes.

Additional improvements consisted of setting up an office and laboratory for the nursery superintendent in charge and a seed extractory for the extraction of seeds from locally collected cones, and installing the overhead water system for block 3.

By the fall of 1933 the number of tress available for planting exceeded by 2,000,000 the production originally predicted. Block 2 was partially seeded in the fall of 1932 for the production of 1934 planting stock. Coincident with the authorization of the President's Emergency Conservation Camps, it became apparent that a much greater amount of planting stock would be needed to assure a maximum reforested area. The remainder of block 2 and all of block 3 were seeded, and there are now in this nursery 25,000,000 seedlings which will be of suitable size for planting by the fall of 1934.

Experience in the region indicates that 2-year-old seedlings can be produced at a cost of less than $1 per thousand. Planting these trees will cost approximately $2 to $3 per acre additional, depending on the character of the planting site. Approximately 75 percent of the total cost of producing the trees and planting them in the field is spent for labor.

H. Basil Wales, *Forest Service.*

TRUCK-CROPS Index Constructed With 13 Products Included The new index of prices to producers of commercial truck crops for shipment to market is an attempt to supply, in part at least, a long-recognized need of the expanding vegetable and truck-crop industry.[10] The seasonal nature of most of these crops with their intermittent appearance on the market and their sudden price fluctuations have necessitated the use of a different type of index number from that used for farm products in general. Like every type of index number, it has inherent limitations. The scope of the index is limited by the inadequacy of price data. It is presented at this time with the hope that even in its preliminary form it may serve a useful purpose and that helpful suggestions and criticisms may be forthcoming.[11]

Contribution of Truck Crops to Farmers' Income

The 1924–29 average farm value of 13 commercial truck crops for market (those included in the index) was $186,000,000, which is about equivalent to 61 percent of the total cash farm income from all truck

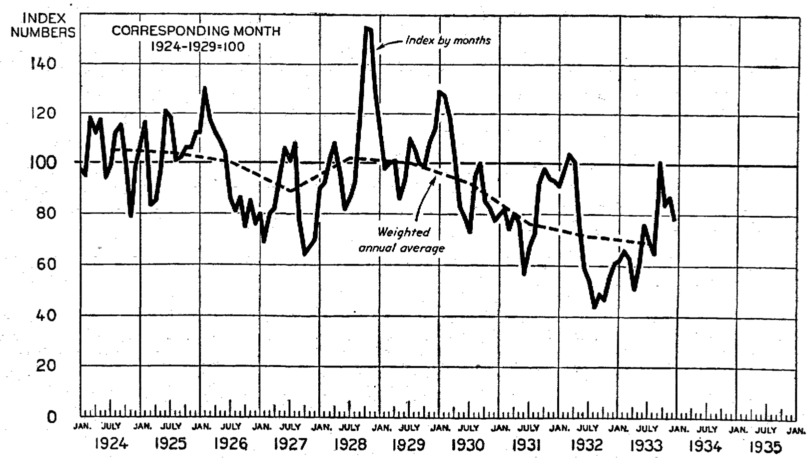

FIGURE 108.—Index of prices of truck crops to producers, adjusted for seasonal variation, since January 1924. Prices of fresh vegetables and other truck crops fluctuate widely because of their highly perishable nature. In addition to the irregular price fluctuations here shown, truck-crop prices undergo a typical seasonal variation, from high prices in winter to low prices in summer. This normal and well-known seasonal variation has been eliminated in the computation of this index of truck-crop prices to producers.

crops of $306,000,000. Farm value exceeds cash farm income by the value of agricultural products used on the farm, but for producers of commercial truck crops this difference is small, for only a small proportion of these are consumed by the farm family. In addition to the average farm value of $186,000,000 from the for-market portion of these 13 truck crops, the value of tomatoes, green peas, asparagus, snap beans, spinach, and cabbage for manufacture averaged $41,305,000 from 1924 to 1929. Truck crops contributed 3.1 percent of the average cash income to farmers from 1924 to 1929, potatoes contributed 2.8 percent and sweetpotatoes 0.7 percent.

[10] The term "truck crops" rather than "fresh vegetables" is used here in order to meet certain objections to classifying tomatoes, cantaloups, watermelons, and cucumbers as vegetables. Commercial truck crops for shipment include vegetables and other truck crops grown primarily for shipment by rail, boat, or motor truck to markets more or less distant from the point of production. This commercial classification excludes strictly market-garden production, production on farms for home use and local sale, and quantities utilized by canning or packing establishments.

[11] A complete report, including tables, is available in mimeographed form. Current index numbers are published each month in the regular monthly report of the Crop Reporting Board on Average Prices Received by Farmers for Farm Products.

Commodities Included

Thirteen commodities are included in the index, the number varying each month from 5 in January, February, September, and November to 11 in June. These commodities in decreasing order of their average importance in the index are as follows: Tomatoes, lettuce, cantaloups, onions, cabbage, celery, snap beans, watermelons, asparagus, green peas, cucumbers, spinach, and carrots. Tomatoes, for example, although given the largest weight—on an average—are included in the index only from April through October.

Changes in Truck-Crop Prices

Pronounced price fluctuations are characteristic of truck crops largely because of their highly perishable nature and the rapidity of changes in supply, especially within a local market or supply area. A night frost may result in an overnight increase in cabbage or lettuce prices of as much as 1,000 percent. Within the time required for such a high short-time supply price to attract an influx of supplies from more distant areas, which may be but a few days, the price may recede to below its former level.

With a recognition of these probabilities, let us look at the accompanying chart on the index of truck-crop prices (fig. 108). The index problem resolves itself into two questions: (1) Whether sufficient facts are available, and (2) whether the index truly represents the facts. The first question has already been discussed, and the desirability of enlarging the scope of the index—which should increase its stability—as more and better price data become available, has been recognized. Most of the major price fluctuations occur from November to March, which is the slack season in the number and supply of fresh vegetables coming to market. When, as, and if prices are obtained for storage stocks of such vegetables as onions and cabbage, these may be incorporated in the index, which would reduce the instability during the winter months.

An examination of the reported price changes for the individual crops seems to justify an affirmative answer to the second question, as to whether the index does a good job of its assigned task.

An analysis of the factors contributing to the rise in the index from August to September 1933 may help to emphasize the nature and operations of the index. Several factors contributed to this rise in the index, only one of which was an actual increase in price. Tomato prices more than doubled, and at the same time the weight of tomatoes in the index was nearly trebled. Watermelon prices were unusually low in July and August and exerted a downward pull on the index until September, when the watermelon season is practically over. The sharp increase in tomato prices from August to September was contrary to the usual seasonal decline. Lettuce and cabbage prices declined some from August to September but less than usual, thus tending to raise the index which is adjusted for normal seasonal variations.

Weights

The weight for each commodity is based on the estimated quantity marketed by months for the 6-year base period, 1924–29. In the determination of these monthly weights the percentage distribution of carlot shipments was first computed for each commodity as an indication of the relative volume of marketings from month to month. If motor-truck shipments had been available to add to the car-lot shipments, the percentage distribution of marketings would have been somewhat different. Motor-truck shipments are relatively more important in the summer and early fall months when areas near large northern cities are important sources of supply. However, motor-truck shipments generally, and perhaps more so in the summer, were relatively much less important compared with car-lot shipments in the period 1924–29 than in the years since 1929.

The next step in computing the weights consisted of multiplying the monthly shipment percentages by the average annual production of these "commercial truck crops for shipment" from 1924–29. These estimates of the actual quantities marketed by months for each crop were used as fixed quantity weights for the corresponding month of each year. The average quantities marketed in January from 1924–29 for example, were multiplied by the average of January prices for the same 6 years and the resulting base value made equal to 100 percent. For any one January, the index would be the percent which the value for that particular month is of the January base-period value.

Effects of the System of Weighing

The use of fixed quantity weights in constructing index numbers from continuous series is relatively simple, and, if quantities do not vary greatly from their relation to one another in the base period, an index of this type is often the most suitable measure of composite price changes. On the other hand, actual or given quantity weights may be multiplied by the price for each month or other period. An index computed from quantities and prices, both of which are continually changing, is essentially an index of income. Higher prices tend to be offset by smaller quantities and vice versa.

This index of truck-crop prices has both fixed and variable weights—paradoxical though it may seem. The weights are fixed for the corresponding month of every year, but they vary from month to month throughout each year. This makes possible two sets of comparisons: (1) A strict year-to-year price comparison between corresponding months for an identical "basket" of commodities and (2) a price comparison between successive months, with the normal (1924–29) seasonal variation eliminated, for a "basket" of commodities which varies in size and in composition from month to month.

Arthur G. Peterson,
Bureau of Agricultural Economics.

VIRGIN Animals Secrete Milk After Injections of Pituitary Hormone

Until the most recent years, scientists and laymen alike believed that full development of the mammary gland and the actual secretion of milk could be brought about only by the normal processes occurring during pregnancy. In the last 2 or 3 years, however, an earnest experimental attack has been made by American (Corner, Turner, Asdell) and European (Grüter and Stricker) investigators in an effort to determine just what factors cause the growth of the mammary gland and, finally, how milk secretion is brought about. Careful investigation has shown that of the relative volume of marketings from month to month. If motor-truck shipments had been available to add to the car-lot shipments, the percentage distribution of marketings would have been somewhat different. Motor-truck shipments are relatively more important in the summer and early fall months when areas near large northern cities are important sources of supply. However, motor-truck shipments generally, and perhaps more so in the summer, were relatively much less important compared with car-lot shipments in the period 1924–29 than in the years since 1929.

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What the exact mechanism of the entire processes of mammary-gland growth and milk secretion actually is, research workers are not wholly sure. Most investigators are familiar with the appearance of a well-developed follicle on the surface of the ovary at the time of oestrus, and are equally well-acquainted with the corpus luteum ("yellow body") that develops when the ovum is shed. It appears from the work of several investigators, mainly Turner and his collaborators at the University of Missouri, that the hormone theelin (presumably produced by the developing follicles) is responsible for the extension of the duct system, and that theelin acts together with the corpus-luteum hormone to stimulate complete mammary growth. But these two hormones alone will not cause milk to be secreted. It is here that the stimulus produced by the anterior lobe of the pituitary gland (a small gland about the size of a hazelnut, lying at the base of the brain) comes into play.

Experiments carried out during the past year at the Physiological Laboratory, Bureau of Dairy Industry, add further support to the theory that the anterior lobe of the pituitary gland elaborates a substance, i.e., a hormone, which initiates the actual secretion of milk. It is not known for certain the extent to which the mammary gland system must be developed by theelin and the hormone of the corpus luteum before secretion can take place in the mammary gland; more work is needed in order to settle this point. Accumulating evidence tends to show, moreover, that the hormone which brings about secretion of milk is not identical to those substances, also secreted by the anterior pituitary, that promote growth, stimulate the thyroid and adrenal glands and are necessary for the normal development and activity of the male and female sex organs.

Experiments with Cows and Goats

In most of the experiments in other laboratories small mammals, such as the rat, guinea pig, and rabbit, have been used in the study of the factors responsible for the control and stimulation of milk secretion. It was thought that some studies should be carried out on animals whose primary function among civilized peoples is the production of milk for human consumption. Experiments have therefore been made on virgin cows and virgin milk goats. With these species it is possible to determine in a quantitative manner the lactation response to the injected hormones. Then, too, there are available for comparison the records of milk yields from normal lactating animals.

Several virgin milk goats were selected and injected over a period of 6 days with 15 cubic centimeters of an extract of the anterior pituitary. By the third day a striking change in the appearance of the udder was evident and on the sixth day the udders of all the injected animals were so swollen with milk that it was thought wise to institute milking. On the first milking the goats produced from 1.8 to 4 pounds of milk. Thereafter the goats were milked twice daily, their level of production agreeing quite well with the average of the normal goat lactating after pregnancy. Also, injection of this same extract into a mature goat during her dry period introduced a new lactation without parturition.

This particular goat secreted about 7 pounds of milk daily for some time after the injection had been made.

Similar results were obtained by the injection of extracts of the anterior pituitary gland into a virgin dairy heifer. In this instance the Bureau investigators were able to maintain the average of 15 to 18 pounds of milk daily from a virgin Jersey heifer for several months after they had ceased giving the injections. Figure 109 illustrates the appearance of the mammary gland of a virgin goat prior to and 6 days after the first injection of the anterior pituitary extract. From this illustration it may readily be seen that there has been effected a considerable increase in size of the gland, due in part to the accumulated milk that was secreted under the influence of the injected lactation-stimulating hormone.

Hormone Stimulates Mammary Gland

For some time the Bureau investigators were under the impression that their preparations of this lactation-stimulating hormone from the

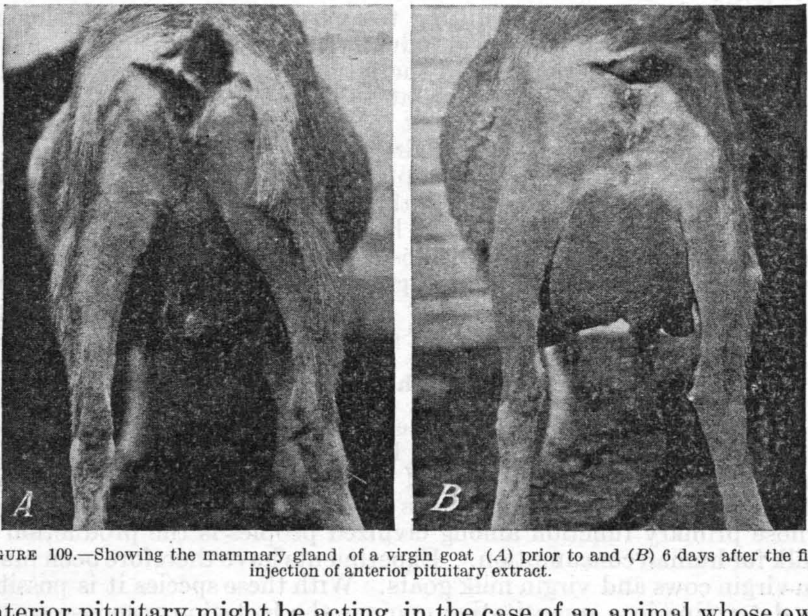

FIGURE 109.—Showing the mammary gland of a virgin goat (*A*) prior to and (*B*) 6 days after the first injection of anterior pituitary extract.

anterior pituitary might be acting, in the case of an animal whose own pituitary was intact, only as a stimulant to the animal's own pituitary to secrete additional quantities of her own hormone. Recent experiments indicate, however, that such is not the case. The point was settled by experimental surgical removal of a female dog's pituitary gland. The dog recovered from the operation and in 24 hours appeared normal in every respect. Subsequent injection of a fairly pure preparation of the hormone into this same dog caused copious milk secretion from hitherto nonlactating mammary glands 18 hours after the first injection. As a result of this test, the Bureau investigators feel that the material they are injecting into normal animals is stimulating the mammary gland directly and not by way of the animal's own pituitary gland.

Certain of the Bureau's experimental cows were thought to have received an inheritance for levels of high production. Nevertheless, their producing performances were disappointing. It was thought that perhaps one of the reasons for this low production might be the secretion in insufficient amounts of the lactation-stimulating principle by their own anterior pituitary glands. Therefore, the Bureau investigators injected extracts of the anterior pituitary into these low-producing cows. They found that in some cases production increased 25 to 50 percent above the levels maintained immediately before the injections were given. It should be emphasized, however, that these higher levels of production were not maintained after the injections were discontinued.

Although the Bureau investigators are aware that failure of the anterior pituitary to secrete proper amounts of its lactation-stimulating hormone in cases of poor milk producers is not the only cause for failure of higher production, they do believe that the anterior pituitary is one of the more important links in the process of mammary-gland growth and milk secretion. Further work is necessary to determine the relative importance of this and other glands of internal secretion in milk production.

Possibilities in Human Medicine

What the Bureau investigators are learning of the role of the anterior pituitary in milk secretion in dairy cattle may be of primary importance to certain problems in clinical medicine. It is well known that a large percentage of mothers fail to secrete enough milk immediately after the birth of a child to provide complete nourishment for it. When hormone preparations of the lactation-stimulating principle are pure enough to warrant their application to this problem in medicine, it is possible that injection of them may bring about a more abundant secretion of milk in these cases.

EVERETTE I. EVANS, *Bureau of Dairy Industry.*

TUBERCULOSIS of Poultry is Being Greatly Reduced by Disposing of Old Hens The disposal of all hens in a flock after they have reached the age of 18 months is meeting with the enthusiastic approval of many flock owners in the Middle Western States. This seemingly drastic procedure, commonly termed "giving the old hen a ride", was designed as a means of eradicating avian tuberculosis, which is the cause of heavy losses on many farms. The effectiveness of the plan centers on the fact that fowls seldom become spreaders of tuberculosis until they are at least a year old. Thus the elimination of hens that have reached the age of 18 months, or after they have finished their first laying year, prevents the disease from getting a foothold, avoids losses through decreased egg production and the death of hens, and permits the maximum production of fall and winter eggs that bring the best prices. Old roosters should also be marketed.

When veterinarians engaged in bovine-tuberculosis eradication made a survey of poultry flocks during 1927 they found that avian tuberculosis was a serious menace to poultry in more than 500 counties in the Central and North Central States. In some areas as many as 15 per-

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When veterinarians engaged in bovine-tuberculosis eradication made a survey of poultry flocks during 1927 they found that avian tuberculosis was a serious menace to poultry in more than 500 counties in the Central and North Central States. In some areas as many as 15 percent of the swine were also affected with the same type of the disease. In most cases where infected swine were found they had been allowed to run with tuberculous poultry.

The eradication of tuberculosis from poultry flocks was begun in a cooperative way in 1931, when the Federal appropriation for tuberculosis-eradication work was increased to include work with poultry as well as cattle. Representatives of practically all branches of the poultry industry met with State and county livestock officials to formulate plans for cooperating in this work. These representatives agreed on a plan for conducting work in restricted areas where State or Federal veterinarians could visit each flock in a county and explain to the owner how to detect the disease by the appearance of the live birds and by post-mortem examination. These inspectors were prepared to apply the tuberculin test to exhibition or high-production flocks in which the value of the fowls was too great to justify making post-mortem examinations.

Fowls Inspected on 2,900 Farms

In counties where the intensive plan has been conducted the veterinarians engaged in this work inspected approximately 4,253,000 fowls on 29,000 farms during the fiscal year ended June 30, 1933. In some counties these workers have completed their second survey of the flocks in order to determine the effectiveness of the work. In one county where more than 600 flocks were inspected, the second survey showed that 92 percent of the flock owners were making substantial progress in eradicating avian tuberculosis. The townships in which most improvement occurred were those in which bovine tuberculosis had been successfully eradicated. In another county the inspector applied the tuberculin test to 42 hens in a flock known to have been infected but from which all the old hens had been eliminated. There were only 2 reactors. The owner of another infected flock in the same county had relied only on moderate culling, in connection with egg production, to eradicate the infection. The application of the tuberculin test to 44 of these hens showed 9 reactors, or more than four times as much infection remaining on the premises. Infected flocks from which the old hens have not been removed often show as high as 50 percent of reactors to the tuberculin test.

In many States where no intensive campaign is in progress the flocks may be inspected by veterinarians who are conducting bovine-tuberculosis eradication. Work of this kind is being carried on in 21 States and last year served nearly 170,000 flock owners having approximately 16,000,000 fowls. This plan provides merely for pointing out symptoms of tuberculosis, offering to make post-mortem examinations of suspected birds, and giving suggestions for eradicating the infection from the premises. In many cases the flock owner does not realize that the disease is getting a foothold until he sees the actual lesions of the disease in one of his hens on post-mortem examination.

If the symptoms in a flock are pronounced the owner is advised to send all his birds to market and start with a new flock on clean ground. Sanitation is important since the tubercle bacilli may live in protected places for a long time. All buildings used by infected birds should be thoroughly cleaned and disinfected in order to protect healthy stock. The disposal of all hens after they have reached the age of 18 months is a precaution that should be followed on farms where there is any possibility of fowls picking up the infection. Runways and pens used by infected flocks should be plowed up and planted to a green crop whenever possible.

Common Symptoms of Avian Tuberculosis

Poultry raisers should acquaint themselves with the symptoms and post-mortem appearance of tuberculosis in poultry so that they may detect the disease should it become established in their flock. The more common symptoms are found in birds over 1 year of age, as tuberculosis requires a number of months to develop sufficiently to interfere to any great extent with the function of the body. One of the first symptoms to be noticed is lameness in one or both legs. Other common symptoms are ravenous appetite, extreme weakness, and gradual emaciation, which becomes very noticeable in the breast. A mature hen may continue to lose weight until she weighs only about 1 pound. As the disease advances, the comb, wattles, skin of the head, and membranes of the mouth become pale. The bird weakens and gradually develops a tottering gait. Usually only a few birds in a flock die at a time, and in most cases these are the older birds.

FIGURE 110.—Veterinarian of the Bureau of Animal Industry demonstrating to a flock owner the presence of tuberculosis in a fowl.

On post-mortem examination a fowl extensively affected with avian tuberculosis will show numerous tubercles in the liver, spleen, and walls of the intestines (fig. 110). The tubercles may be white or yellow, and vary in size from that of a pin point to that of a walnut. The liver may be many times enlarged, occupying about half the abdominal cavity. The spleen also may be greatly enlarged.

That there is great need for energetic efforts to be continued in the eradication of avian tuberculosis is shown also in reports covering post-mortem examinations of market poultry in various sections of the Middle Western States, where shipments of fowls are found with as high as

15 percent of infection. Establishments engaged in canning poultry meat often refuse to buy fowls from districts having even a moderate degree of infection because of the losses resulting from affected parts, which must be destroyed.

ELMER LASH, *Bureau of Animal Industry.*

VEGETABLE-DESCRIPTION Work Progresses; First Reports Now Available The Yearbook of Agriculture for 1932 contained a brief outline and progress report upon the Department's vegetable variety standardization and description project. Nearly half of the State agricultural experiment stations, widely distributed over the country, have cooperated with the Department in studying a total of 78 of the most important varieties of tomatoes, cabbage, peas, carrots, beets, spinach, and onions. Many hundreds of strains and stocks have been grown and carefully studied in about 25 different locations in informal collaboration with representatives of the seed and vegetable industries. The first completed reports on this large, long-time project are now available at small cost. These publications are thoroughly illustrated, many of the illustrations being in natural color. The publications now available are as follows:

Miscellaneous Publication 160, Descriptions of Types of Principal American Varieties of Tomatoes. Price 35 cents.

Miscellaneous Publication 169, Descriptions of Types of Principal American Varieties of Cabbage. Price 40 cents.

Miscellaneous Publication 170, Descriptions of Types of Principal American Varieties of Peas. Price 45 cents.

Descriptions and illustrations of the most desirable type of each variety are presented, together with other descriptions and illustrations of unavoidable deviations from the standard type that may be obtained in different parts of the United States. It is thus recognized that a certain variety may not—indeed usually does not—exhibit the same appearance under all the conditions under which it can be successfully grown. This is an especially important feature of the work, since it represents the first attempt to prepare for vegetable varieties descriptions that can be used with confidence on a Nation-wide basis.

Orders and remittance for these publications should be sent to the Superintendent of Documents, Government Printing Office, Washington, D.C.

VICTOR R. BOSWELL, *Bureau of Plant Industry.*

VITAMIN Standards of International Conference Being Adopted in U.S. Vitamins have assumed such an important role in nutrition that in recent years particular attention has been devoted to their quantitative determination. Physical and chemical methods are now being developed which may prove satisfactory for the determination of some of the vitamins in particular products, but for the present we must rely on biological assays, that is, determination of the vitamin content of a product by the use of experimental animals.

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ELMER LASH, *Bureau of Animal Industry.*

VEGETABLE-DESCRIPTION Work Progresses; First Reports Now Available The Yearbook of Agriculture for 1932 contained a brief outline and progress report upon the Department's vegetable variety standardization and description project. Nearly half of the State agricultural experiment stations, widely distributed over the country, have cooperated with the Department in studying a total of 78 of the most important varieties of tomatoes, cabbage, peas, carrots, beets, spinach, and onions. Many hundreds of strains and stocks have been grown and carefully studied in about 25 different locations in informal collaboration with representatives of the seed and vegetable industries. The first completed reports on this large, long-time project are now available at small cost. These publications are thoroughly illustrated, many of the illustrations being in natural color. The publications now available are as follows:

Miscellaneous Publication 160, Descriptions of Types of Principal American Varieties of Tomatoes. Price 35 cents.

Miscellaneous Publication 169, Descriptions of Types of Principal American Varieties of Cabbage. Price 40 cents.

Miscellaneous Publication 170, Descriptions of Types of Principal American Varieties of Peas. Price 45 cents.

Descriptions and illustrations of the most desirable type of each variety are presented, together with other descriptions and illustrations of unavoidable deviations from the standard type that may be obtained in different parts of the United States. It is thus recognized that a certain variety may not—indeed usually does not—exhibit the same appearance under all the conditions under which it can be successfully grown. This is an especially important feature of the work, since it represents the first attempt to prepare for vegetable varieties descriptions that can be used with confidence on a Nation-wide basis.

Orders and remittance for these publications should be sent to the Superintendent of Documents, Government Printing Office, Washington, D.C.

VICTOR R. BOSWELL, *Bureau of Plant Industry.*

VITAMIN Standards of International Conference Being Adopted in U.S. Vitamins have assumed such an important role in nutrition that in recent years particular attention has been devoted to their quantitative determination. Physical and chemical methods are now being developed which may prove satisfactory for the determination of some of the vitamins in particular products, but for the present we must rely on biological assays, that is, determination of the vitamin content of a product by the use of experimental animals.

Differences in the methods of biological assay developed by various investigators have led to a great deal of confusion in expressing the vitamin content of our foods. This has hampered progress in research and made control problems difficult. When a poultryman, for example, attempts to compare the relative merits of cod-liver oils from different sources, he finds that the vitamin D content of the oil is expressed in three different units whose comparative values are understood by only a few scientists. The physician is confronted with the same vexatious situation in choosing a vitamin-D-containing product in the treatment of rickets.

In June 1931 there was held in London an international conference, sponsored by the League of Nations, to consider standards for vitamins with the hope that the same designation for vitamin content would be adopted universally. This country was represented by two official delegates. At this conference standards for vitamins A, B, C, and D were adopted, and a unit of each of these vitamins was defined. The standard for vitamin A is a specified preparation of carotene, and one unit is defined as the vitamin A activity of one millionth of a gram of this preparation.

The standard for vitamin B is a specified preparation from rice polishings, and a unit is the vitamin B activity of one hundredth of a gram. The standard for vitamin C is lemon juice, and a unit is the vitamin C activity of 0.1 cubic centimeter. The standard for vitamin D is a specified preparation of irradiated ergosterol; the unit is the vitamin D activity of one thousandth of a gram of this preparation. (For the benefit of those who are not familiar with the terms gram and cubic centimeter, it may be stated that there are approximately 454 grams or cubic centimeters in 1 pound of water.) When used in parallel feeding experiments, these standards permit a more accurate evaluation of the vitamin content of a product, and they also permit investigators working in different laboratories to express vitamin content in the same terms.

Suitable quantities of the standard for vitamins A, B, and D have been sent to a central distributing agency in each country. The Protein and Nutrition Division of the Bureau of Chemistry and Soils acts as a distributor in this country. It is, however, only a matter of courtesy to the League of Nations, through whose generosity the standards are made available to us free of charge, to put definite restrictions on the distribution of these preparations.

Through the cooperation and aid of the board of trustees of the United States Pharmacopœia, there is now also available through the chairman of the United States Pharmacopœia revision committee a so-called reference cod-liver oil, whose vitamins A and D content in terms of international units has been carefully established, and standards for vitamins A, B, C, and D are available in sufficient quantities for every legitimate need.

International Standards in Great Demand

Investigators and manufacturers in the United States have shown a desire to adopt the international units, and the standards have been in great demand. The relationships between the international units and other units now in use have been fairly accurately established, and early adoption of the international units may be looked for. With the universal adoption of the international vitamin units, cod-liver oil manufactured in Norway, Newfoundland, and the United States will have their vitamin D content designated in the same units, and the manufacturer of a medicinal or food product will no longer have to label its vitamin D content in two different units in order to make clear the quality of his product.

While the present standards have, in general, proved satisfactory, the rapid developments in elucidating the chemical nature of vitamins during the past 2 years have made possible further improvements. A second international conference is now being planned for June 1934, and consideration has already been given to the adoption of ascorbic acid as a standard for vitamin C. Pure ascorbic acid has the physiological properties of vitamin C, and it can be prepared in sufficient quantities and with a satisfactory degree of purity to serve as a standard for biological assays. Other changes may be made from time to time, but from the standpoint of practical utilization of the vitamins it will probably be many years before so notable an advance will occur again as the adoption of the international standards in 1931.

E. M. Nelson, *Bureau of Chemistry and Soils.*

WHEAT Leaf Rust Lowers Milling and Baking Qualities Leaf rust of wheat, in contrast with stem rust, seldom causes a complete crop failure even in severely infected fields. It does, however, materially affect the quality of the grain and of course reduces the yield somewhat. Also, strange as it may seem, the kernels are not shrunken as they are with stem rust, being usually fairly plump and on casual inspection not greatly different from those from nonrusted fields. The difference is mainly in the protein content of the grain, that from rusted fields usually containing the lesser amount.

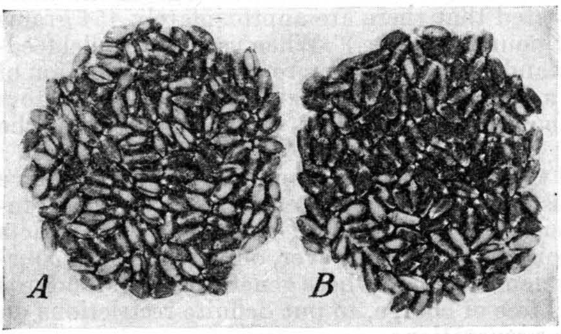

FIGURE 111.—Effect of leaf rust on the quality of Fulhard wheat kernels: *A*, Kernels from rusted plants, showing high percentage of yellow berry; *B*, kernels from nearly rust-free plants, showing a low percentage of yellow berry.

While the effects of leaf rust in general are much less serious than those of stem rust, leaf rust occurs more frequently and affects a larger territory. It is often present in serious amounts from the extreme southern part of the United States to the Canadian border. Hence, the effect of leaf rust on the quality of the grain is a matter of considerable importance.

Experiments have been conducted cooperatively by this Department with the botany and chemistry departments of the Purdue University Agricultural Experiment Station that show the effect of leaf rust on wheat quality. By dusting certain small areas of wheat with sulphur it is possible almost entirely to prevent leaf rust from developing on manufactured in Norway, Newfoundland, and the United States will have their vitamin D content designated in the same units, and the manufacturer of a medicinal or food product will no longer have to label its vitamin D content in two different units in order to make clear the quality of his product.

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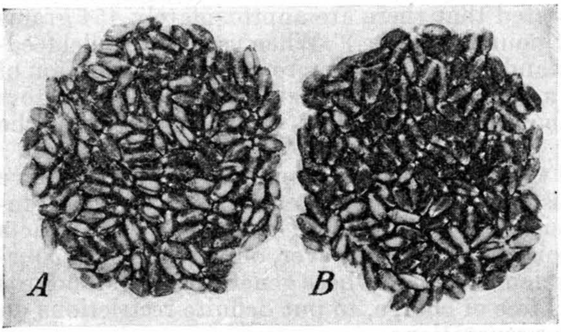

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Other Causes of Low-Protein Grain

Wheat leaf rust is not the only cause of yellow-berry low-protein grain. Certain soil fertility and weather conditions also are known to produce this result. However, it may well be that a leaf-rust epidemic, acting either alone or with these other factors, has frequently been largely responsible for the poor quality of wheats harvested in areas that usually produce good hard wheats.

Leaf rust of wheat, in contrast to its relative, stem rust, lives through the entire year on the wheat plant. Therefore, no eradication plan will remove the source of leaf-rust infection. The sulphur dusting that will control leaf rust is too costly to be applied. Thus no means of practical control of this disease is available except the breeding of desirable wheat varieties that do not take the leaf rust. Such breeding work is in progress and gives promise of eliminating the disease as a factor in lowering the yield and the bread-making quality of wheats.

R. M. Caldwell, *Bureau of Plant Industry.*

WHEAT-Production-Control Program Wins Farmer Support

On June 20, 1933, the Secretary of Agriculture announced that under the new Agricultural Adjustment Act adjustment payments would be made to the wheat farmers of the United States if they would sign contracts with the Agricultural Adjustment Administration, agreeing to join with their neighbors in reducing the Nation's total production of wheat so that it would again pay them to grow wheat. Upon the proclamation of the Secretary and the decision of the administrators of the Agricultural Adjustment Administration has been built wheat-production-control machinery extending into 1,700 counties in 40 of the States and involving half of all of the farms in the United States which in recent years have been producing wheat.

The task of getting the wheat program under way was colossal. It meant the blazing of new trails, the formulation of new policies, and the setting up of new machinery for giving actual effect to the production-control program.

One of the most important steps in the wheat program was to plan and get under way a far-reaching educational campaign. This campaign was designed to reach every wheat grower in the United States whom it was possible to reach. It was carried on through the Federal and State cooperative agricultural extension service. The main purpose of it was to carry to farmers the latest and best information available on the production, market movement, and consumption of wheat, the plants, while similar nearby areas become severely rusted. When diseases other than leaf rust are absent, comparisons of the grain from such rusted and nonrusted areas show the effect of leaf rust on the quality of the grain (fig. 111). The grain from leaf-rusted plants appears lighter in color, contains many more yellow-berry kernels, and is lower in protein content than that from nonrusted plants. This may be a serious defect, especially in those areas that normally secure a premium for high-protein wheat. The yield of grain is also reduced materially though not so much as might be expected.

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The Educational Campaign

The educational campaign was carried on through meetings of farmers, informative articles in the press, talks and discussions over the radio, personal contact with the growers, circular letters, and every other available and feasible medium. The general direction of the educational campaign was placed by the Secretary of Agriculture in the hands of the cooperative Federal and State Extension Service, and in the local wheat-producing communities it was directed by the county agricultural extension agents and by the emergency agricultural agents.

Meetings of extension people and wheat producers were held in every community in the main wheat-producing States. At these meetings the people in charge of the campaign presented the latest and best information available on the wheat situation, both domestic and world; on the change in the position of the United States from that of debtor to that of creditor in international affairs; on the restrictions placed upon international trade by the various nations after the World War, with resultant shrinkage of the former export outlets for our goods of all kinds, including wheat, and on the general struggle of the nations of the world to find export markets for their products. Everywhere it was emphasized that it had become absolutely necessary for the farmers of the United States to reduce their total production of wheat to the point where a market could be found for the supply produced, and that they then must maintain production on a level where it would bear a sound relationship with effective demand.

The attention which was given to the educational part of the program was not confined to the economic situation of wheat alone. The Agricultural Adjustment Administration of course recognized the interrelation of all of our agricultural commodities in the national and the world economy, and it therefore endeavored in the wheat campaign to lay a foundation for all of the commodity programs which were to follow, so that all farmers would have a broad understanding of the principles involved.

The results of the educational campaign fully justified the emphasis which was placed upon it. About 750,000 wheat producers of the United States, including both landlords and tenants, gave their hearty support to the principle of production control. That number of individual contract signers, who signed a total of about half a million contracts, associated themselves together in county or district wheat-production-control associations, covering approximately 1,700, or all, of the principal wheat-producing counties of the United States.

More than 30,000 workers assisted the wheat producers in preparing and filling out their applications for adjustment contracts and their contracts. Nearly 5,000 members of the allotment committees of the county and district associations calculated the individual farmers' allotments, and certified to the applications and contracts.

Control Associations to Continue

The wheat-production-control associations are continuing organizations; they will continue to exist as active organizations of the wheat producers, at least for as long as the present contracts extend, for the reason that adjustment payments can be made only upon certification by the local allotment committees, the members of which are elected by the members of the association.

In the formulation of the wheat program certain principles were accepted as fundamental and therefore essential. Some of these were:

(1) The total volume of wheat production in the United States must be reduced to and be kept within effective demand.

(2) The administration of the wheat program must be left with the farmers themselves just as far as possible.

(3) The farmers who cooperate in the program must, by reason of their cooperating, be given advantage which noncooperators would not have.

(4) The program should be based upon the cooperator's past production and acreage.

(5) Production control should be accomplished through acreage control.

(6) The program should have such flexibility as to enable it to meet any changes in conditions which might occur from time to time, and also it should enable the United States to conform to any commitments which it might make with other nations of the world for the regulation of wheat production and the exportation of wheat.

(7) The purchasing power of the United States wheat grower's wheat must be restored to where it was in a pre-war period.

(8) The increase in the return to the producer for his wheat should be borne by the consumer of the wheat and not through general taxation.

(9) The consumer must be protected from undue increases in prices in restoring purchasing power to the farmers.

In accordance with these principles, the wheat program, which was drafted by the Wheat Section of the Agricultural Adjustment Administration and approved by the Secretary of Agriculture and the administrators of the act, contained the following main provisions:

(1) Production-adjustment payments should be made to cooperating producers for each of the crop years 1933, 1934, and 1935.

(2) The basis of payment should be the producer's actual average production in a base period, and his acreage reduction should be based upon the actual acreage which he had in wheat in the same base period.

(3) Payments should be made according to each producer's share of the total amount of wheat which is domestically consumed in the United States and upon which the processing tax would be paid, such share to be called the producer's farm allotment.

(4) The percentage of acreage reduction should be determined by the Secretary of Agriculture within the limit of 20 percent of the producer's base acreage.

(5) The funds necessary for making the adjustment payment to the producers should be provided by a processing tax on the wheat processed for human food.

(6) The consumer should be protected by the requirement that each producer cooperating in the program would be required to sow a sufficient acreage of wheat to produce his alloted proportion of the total amount of wheat domestically consumed.

(7) The local administration of the wheat program should be carried on by and through county and district wheat-production-control associations, the membership of which would consist of the cooperating producers and the officers of which would be elected by the members themselves.

Eighty Percent of Acreage Covered

The sign-up of wheat-production-adjustment contracts covers approximately 80 percent of the total wheat acreage of the United States. The proportion of the total acreage which was signed up by the comparatively large producers was greater than it was first thought would be the case; there was a tendency for the smaller producers who had been growing wheat for only local and home consumption and livestock feed to remain outside of the program. As the anticipated sign-up of a total of about 80 percent of the Nation's wheat acreage was accomplished by the signing up of only about half of the farmers who ordinarily raised wheat, the amount of local organization, the cost of administration, and administration problems were not as great as they might otherwise have been.

The funds for making the adjustment payments to the wheat producers are derived from a tax on the volume of wheat processed for human consumption. At the inception of the wheat program the processing tax was placed at 30 cents per bushel. The adjustment payments to the producers were placed at the same amount per bushel on the basis of each producer's production allotment, less a small percentage for setting up a reserve fund for taking care of whatever losses might be involved in the exportation of a certain amount of our existing burdensome surplus.

In January, when this was written, it was estimated that the total amount of the adjustment payments to be paid to producers in the first year of operation of the wheat program would be about $100,000,000, about $70,000,000 of which would be represented by the initial payments on the contracts.

In the summer of 1933 proposals for the control of wheat production on a world basis were laid before the World Economic Conference which was held in London, England, during the summer and which was commonly referred to as the London Economic Conference. At this conference many of the countries of the world were represented, and the world wheat situation was one of the important subjects for consideration. The conference recognized the fact that the constantly growing world wheat surplus had been adversely affecting world trade to an extent which seriously interfered with economic recovery in the principal wheat-producing nations, especially those which had been exporting large quantities of wheat. The conference laid down a general program having as its object the control of production and the reduction and prevention of burdensome surpluses. The conference reached agreement on wheat, and under the agreement the United States was allotted an export quota of 47,000,000 bushels for the year 1933–34 and 90,000,000 for the year 1934–35. The base period which the conference adopted as the basis for the world wheat-production-control program was the years 1930–31, 1931–32, and 1932–33. This base covered a period ending 1 year later than the base which had been adopted by the Agricultural Adjustment Administration for our own wheat program. When the agreement was reached the United States was the only one of the nations which had the necessary machinery in existence for making wheat-production control possible. This control was provided for by our recently enacted Agricultural Adjustment Act.

Effect of Tax on Consumption is Vital

Inasmuch as the funds for making the adjustment payments to the wheat farmers are derived from the tax on processed wheat, the effect of the tax on the domestic consumption of wheat is of vital importance to the success of the plan. Under the Agricultural Adjustment Act, wheat processed by or for the producers themselves is exempt from payment of the processing tax, and refunds of the processing tax are made on the processed wheat distributed by charitable and relief organizations. It is estimated that the net return from the processing tax for the first year of operation of the wheat program will be about \$105,000,000. In making this estimate, allowance was made for the wheat processed by or for producers or for charitable or relief organizations.

The Agricultural Adjustment Administration does not believe, of course, that the production of wheat in the United States should be reduced to the absolute level of our own domestic requirements. There is always the possibility that a certain percentage of our wheat can be moved in export trade to advantage, and furthermore, it is necessary that a margin of safety be provided to insure that the United States will have enough wheat for its domestic requirements in the event we should have short crops. However, it is recognized that if this margin of safety is too wide it might have the effect of depressing the price of our wheat down to, or at least toward, the world level.

C. C. CONSER,
Agricultural Adjustment Administration.

WILD-LIFE Factors Important in Efforts to Improve Forests

Intricately involved conditions confront those who seek the most desirable use of lands that are now forested or have been despoiled of their original forest cover and await the efforts of man to restore them to profitable production. Biological principles must be the foundation of the management practices designed to improve production and will govern their ultimate success. The many species of wild animal life inevitably enter the picture either as productive assets of forests, as factors in their establishment and maintenance, or as devastating agencies to limit returns or nullify toil and expenditures in forest improvement. It is the part of intelligent foresight to consider these three aspects of forest and wild-life relationships in planning for the utilization and improvement of forested lands and for the restoration of depleted areas to productivity.

Three Classes of Forest Fauna

The productive wild-life assets of forests include chiefly fur animals and upland game. Among the latter are grouse and turkeys; the upland game mammals include rabbits, squirrels, bears, deer, elk, and moose. In the list of fur-bearers are martens, fishers, minks, skunks, foxes, opossums, and raccoons. To meet the increasing demands for recreation, for profit to the landowner, and for support of the great manufacturing and outfitting industries dependent on adequate supplies of game and fur, it is desirable to maintain and increase these wild-life assets of the forests.

The wild-life factors in the establishment and maintenance of forests comprise the distributors and planters of seed and the destroyers of insects and other destructive agencies. Well known among the seed disseminators are the squirrels, chipmunks, and seed-eating birds, which in feeding, drop or plant nuts and seeds in places favorable for growth. The hosts of small creatures that search out insects and other small enemies of the forest thus tend to keep under natural control the populations that would otherwise become excessive. The impormade on the processed wheat distributed by charitable and relief organizations. It is estimated that the net return from the processing tax for the first year of operation of the wheat program will be about $105,000,000. In making this estimate, allowance was made for the wheat processed by or for producers or for charitable or relief organizations.

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The destructive wild-life agencies are species that multiply excessively or attack valued kinds of forest plants or animals at critical stages. The maintenance in proper proportion of the numbers of these plants and animals is the key to successful forest and wild-life management. Failure to recognize this fact and ineffectiveness in dealing with it have led to disastrous losses and to the failure of many otherwise promising undertakings in forest-improvement work. Well-known examples can be cited in the Kaibab deer surpluses, when starvation among the Arizona herds resulted from an inadequate food supply; and in the destruction of numerous forest plantings through failure first to study the injurious rodent situation and apply necessary preventive measures.

For nearly 50 years the Bureau of Biological Survey has been engaged in building up a body of knowledge regarding mammals, birds, reptiles, and amphibians, based on extensive surveys and the collection and classification of specimens and the compilation of records of occurrence, distribution, life histories, and habits. The Bureau has devoted much attention not only to the relationships that wild life sustains to agricultural crop and livestock production, but also to forestry. This work has served to bring into prominence the importance of the interplay of the materials and forces of nature and the principles on which nature works.

Forest-Fauna Research under McSweeney-McNary Act

In recent years the problems of wild life as they relate to forestry production have been attacked under far-sighted congressional authorizations. Comprehensive plans along major lines of approach to essential features are being put into effect as appropriations permit. These plans involve investigations of all forms of the forest fauna—rodents, predators, fur animals, game and nongame birds, and the reptiles and other lower forms.

Under this program the study of rodents includes their relation to grazing, erosion, and soil working; their effect on ground and tree-nesting birds, including species valued as game; their influence on tree seeding and growth, including beneficial and harmful activities; their role as destroyers of harmful or beneficial insects or other small invertebrates; their agency in carrying parasites and diseases; the determination of procedure for their effective control where they are unduly destructive, or for their protection and encouragement where they are beneficial; and observations of their breeding and feeding habits and movements as these relate to their economic status.

The carnivores are studied as to their value as fur producers and their influence on the welfare and abundance of other species. The harmful relationships of the predatory species involve destruction of game and livestock and their role as carriers of parasites and diseases communicable to man, or to game, livestock, or other valuable species. Investigations are made of their breeding habits in relation to abundance and destructiveness; the necessity for control measures; and the possibility of such control or protection as the situation requires.

Fur-bearing animals of forested and other areas are studied to determine their feeding, breeding, and other habits in relation to other useful or harmful wild life and their value in pelt production. The numbers that can be maintained profitably on a given area are determined, and means are provided for producing adequate numbers to meet commercial requirements. The regions in which furs are of best quality or are most satisfactory for commercial purposes are studied and mapped.

Investigations of game animals include observations on their feeding habits in relation to tree and shrubbery growth and to livestock grazing; ascertaining the numbers that can be maintained satisfactorily on given areas; developing means of maintaining proper game populations and harvesting the surplus; and reserving areas suitable for stocking with native species.

Investigations of birds are made of both game and nongame species. Studies of nongame birds cover the occurrence, abundance, distribution, life history, and the migrations of all forest-inhabiting species, their feeding habits, including injury or benefit to tree growth or reproduction and seed distribution; and their relation to beneficial or harmful species of insects, birds, rodents, or other small animals. Studies also are made of their relationships to food or game fish in forest streams and lakes, their possible agency in the dissemination of tree diseases, and means for the control of harmful and the increase of beneficial species.

Game-bird investigations are conducted to determine essential facts regarding their distribution, movements, habits, and habitat relationships, and the factors affecting their abundance. The study of feeding habits includes observation of any direct injury or benefit to forest reproduction or growth. Consideration is also given to the value of game birds as financial or recreational assets of the forests and to means of increasing their numbers where this is desirable.

Research on similar lines is contemplated in the case of reptiles and amphibians, with particular attention to poisonous species, including such monetary losses due to their presence as death of livestock or lowered grazing values of lands. Effort will be made to determine their relationship to rodent pests, to birds with beneficial habits, to fish that are utilized by man for food, to small game, and to fur-bearing animals. Experiments will also be conducted to determine practical methods for the control of such dangerous or harmful species as rattlesnakes, copperheads, and water moccasins; and to develop means for the protection and increase of useful species.

Practical Application of Wild-Life Studies

Problems of major importance in the various regions are given first attention, and results as obtained are made available for use in forest-improvement plans. Practical application of this research and fact-finding program was found to be of special importance from the viewpoint of wild-life considerations in the vast program of land utilization and forest improvement launched under the various relief and public-works undertakings of Federal and State Governments and in cooperation with private enterprise. Thus the Biological Survey was able to cooperate in the preparation of the wild-life sections of a recent special report (Senate Document No. 12) on A National Plan for American Forestry, and has been in position to serve in an advisory capacity on wild-life interests in the formulation and carrying into effect of such far-reaching national efforts as the forest-improvement operations of the Civilian Conservation Corps, the Tennessee Valley improvement program, land-utilization plans of the Agricultural Adjustment Administration, and in the forestry, wild-life, and recreational undertakings under the National Recovery Administration.

W. B. BELL, *Bureau of Biological Survey.*

WOODLANDS Cut by the "Selection Method" Less Liable to Fire Damage

The greatest concern of many owners with regard to their farm woodlands and timbered areas is that fire may sweep over their land and destroy or seriously injure their forest growing stock. If the fire danger could be reduced, more landowners would be interested in using

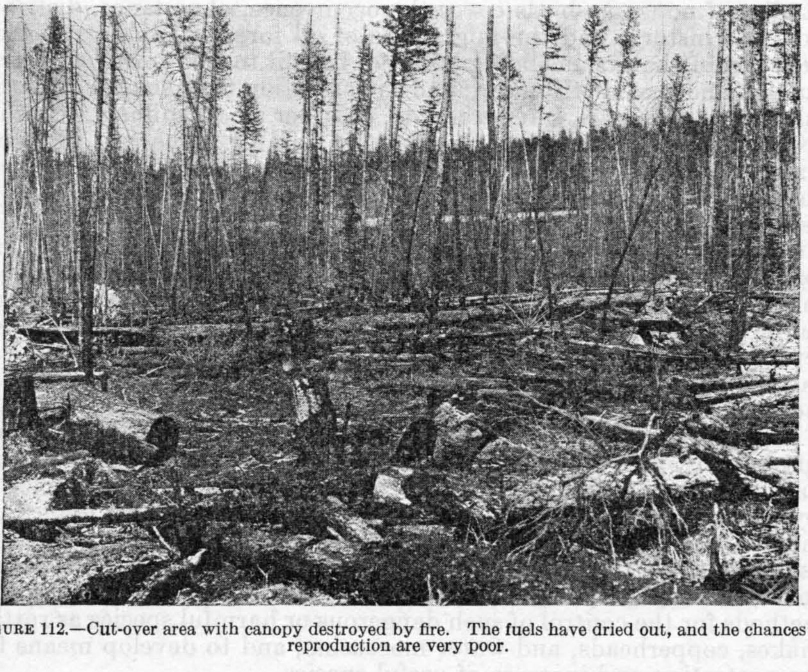

FIGURE 112.—Cut-over area with canopy destroyed by fire. The fuels have dried out, and the chances of reproduction are very poor.

for continuous forest production lands that are too poor for agricultural crops. Thus the owner not only would obtain an additional crop, but also provide for himself and others profitable work that could be done at a time of year or during years when other work is at low ebb.

Every timberland owner knows that if he cuts most or all of the trees on an area, this "opening up" lets in the sunlight and the hot, drying winds which were previously excluded by the dense forest canopy. Few owners, however, appreciate the effect of such openings in causing drier fuels and greater inflammability on the area and the danger which threatens not only the forest growth remaining after cutting but also all surrounding timber, adjacent buildings, etc. Tender young seedlings are exposed to the excessively high temperatures of full sunlight; sun scald and cat face are produced on saplings and poles; and the ground is so dried out that new seedlings are unable to obtain sufficient moisture to survive the period of maximum drought (fig. 112). Few even the Civilian Conservation Corps, the Tennessee Valley improvement program, land-utilization plans of the Agricultural Adjustment Administration, and in the forestry, wild-life, and recreational undertakings under the National Recovery Administration.

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Some recent measurements made on fully timbered, half cut-over, and clear-cut land at the Priest River branch of the Northern Rocky Mountain Forest Experiment Station clearly indicate that these effects are very great. But they also show that it is possible to reconcile the desirable practice of cutting timber with the usually undesirable after effect of extreme drying. This reconciliation can be brought about by the so-called "selection" method of cutting, which removes the merchantable and the undesirable trees in the stand and yet retains enough crown canopy to shade the ground and the mat of leaves and twigs covering it. This shade is the best assurance that the soil moisture will be sufficient for seedlings and that the dead leaves and

FIGURE 113.—Canopy preserved after cutting. The fuels are protected from direct sunlight and the ground conditions are favorable to reproduction.

twigs on the ground will not become extremely dry and inflammable (fig. 113).

Table 10, summarizing these measurements, shows how clear cutting produces greater fire danger and how partial cutting assists in keeping the danger down.

TABLE 10.—*Measurement of factors in fire danger on uncut, half-cut, and clear-cut forest land, northern Idaho, Aug. 11–20, 1931*

Factor measured	Uncut area	Half-cut area	Clear-cut area
Average maximum air temperature ... °F	83.9	86.9	90.6
Average relative humidity at 5 p.m. ... percent	23.4	19.0	16.8
Average wind movement ... miles per day	2.0	24.8	49.6
Evaporation rate ... grams per period	34.7	93.4	206.7
Average maximum temperature just below surface of duff ... °F	78.8	93.6	133.3
Highest duff temperature ... do	85.0	102.0	148.0
Average moisture content of duff ... percent	10.5	9.9	4.6
Average moisture of 2-inch diameter dead wood ... do	8.3	7.2	3.8

One of the most striking features in table 10 is the extremely high temperature of 148° F., measured just under the surface of the dead leaves and twigs forming the carpet of duff covering the mineral soil on the clear-cut area. At the surface of the duff, in the full blast of the sun, the temperature must have been even higher than 148°. As surface temperatures above 120° to 125° are dangerous to young seedlings, and temperatures of over 140° are generally fatal, the danger in such exposure to the sun is clear. Under the partial shade of the trees reserved from cutting, however, the temperature rose to only 102°, while under the almost complete shade of the undisturbed forest the maximum temperature in the duff rose to only 85°, or 1.1° above the lowest air temperature recorded.

Tree Crowns Absorb Direct Sunlight

These conditions illustrate the ability of the tree crowns to absorb direct sunlight, thereby preventing high temperatures in the ground and in the fuels on the ground. The remainder of the table shows that this resulted in an improvement of all those factors—air temperature, humidity, and evaporation rate—which make for drier fuels and faster spread of fire.

It is also evident in these measurements that removing half the timber canopy, in order to log the merchantable trees and to remove those that were diseased and otherwise defective and not worth their growing space, did not result in drying out the site to a condition half-way between that of the full-timbered and clear-cut areas. This is shown by the fact that the measurements on the half-cut area resemble more closely those for the fully timbered than those for the clear-cut area. In other words, although half the crown canopy was taken out, the danger was not increased proportionally.

One important fact should be remembered. After logging operations, the debris is usually burned, if it cannot be utilized profitably, and this burning must be done with extreme care in order to save all of the green canopy left. Very often there is plenty of shade available until the debris is burned, but because the burning is done at the wrong time of year, or because the debris is burned broadcast rather than in piles, all this beneficial shade is lost and the area becomes fully exposed and a future fire menace rather than a source of future revenue.

H. T. Gisborne, *Forest Service*.

WOOL Yield and Fleece Density Can be Measured by a Simplified Method

Since returns from the wool of a flock of sheep depend to a large extent on the weight and quality of the fleeces, information concerning the shrinkage and other characteristics of wool is of practical value to growers. Owing to varying quantities of dirt and other foreign matter in wool, personal judgment, even among experienced sheepmen, is likely to involve serious error. For this reason the Department of Agriculture has developed a reasonably simple method for determining the yield of clean wool and also its density.

Obtaining and Preparing Sample

With clippers, a sample of wool is removed from the side of each sheep, and the cleared area is measured with special care. A clipper

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Obtaining and Preparing Sample

With clippers, a sample of wool is removed from the side of each sheep, and the cleared area is measured with special care. A clipper that cuts a narrow swath, 1 or 2 inches wide, is well suited for the purpose. If many samples are to be taken a power clipper is desirable, owing to saving in time and labor. If barber's clippers are to be used, the comb and cutter should be so ground that the teeth of the lower blade extend slightly ahead of the upper blade, thereby permitting the cutter to feed through the wool. In any case, shearing should be close to the skin and the swath from 4 to 5 inches long. The weight of the samples will range from about 5 to 25 grams, depending on the quantity of grease and dirt present and the character of wool. Accurate measuring is best accomplished by holding the animal flat on its side. The wool is either weighed immediately on a scale accurate to one tenth of a gram, or put in a moisture-tight container and weighed later. After being weighed, the sample is placed, for cleaning, in an open-

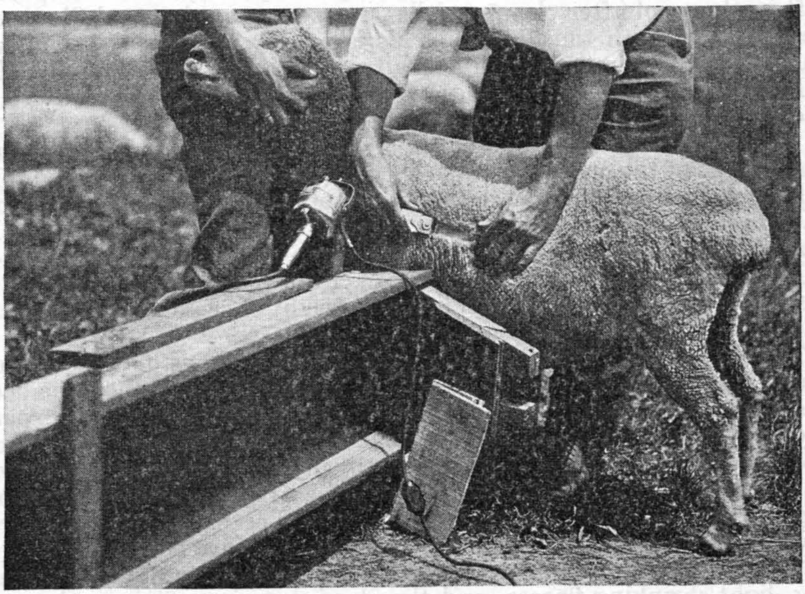

FIGURE 114.—Taking sample for the determination of clean wool. If clean-wool yield alone is wanted, the sample need only be weighed. If density also is to be calculated, the clipped area must be measured.

mesh bag with an identification tag. About 25 of these bagged samples are placed in a larger open-mesh bag about the size of a pillowcase.

The method just described furnishes data on both the clean-wool yield and density. When only the clean-wool yield is desired, measurement of the sheared area is unnecessary, and larger samples weighing about 100 grams, or nearly 4 ounces, may be used. Such samples require less accurate weighing. An ordinary letter scale will give satisfactory results.

Figure 114 illustrates a clipped area which furnished a small sample, and the equipment used in obtaining it.

Cleaning the Sample

The unique feature of this method is that the weighed samples are drycleaned. Many samples of raw wool are thus cleaned satisfactorily at one time without felting. The procedure described is unsuitable for use in connection with the usual scouring process in which warm soap and alkali solution are used. The reliability of the drycleaning method however, has been established by the close agreement in results obtained on samples drycleaned as compared with similar samples scoured individually in a soap-and-alkali solution. In the practical operation of the drycleaning method, which is the same for large and small samples, cleaning is accomplished by delivering the sack of samples to any commercial drycleaning plant equipped for thoroughly cleaning clothing. Instructions are given that the samples be cleaned by the same procedure used in drycleaning men's suits. The National Association of Dyers and Cleaners has cooperated in working out the details of the method here described.

A well-equipped drycleaning establishment ordinarily is able to clean as many as 200 samples in an hour. Any sand, chaff, or other impurity left in the wool after cleaning falls out as soon as the wool fibers are teased apart with the fingers. This is readily accomplished and requires only 3 or 4 minutes for a small sample and about 10 minutes for a large one. The clean samples, when thoroughly dry, are ready to be weighed again for determining yield and density.

The percentage of clean wool in a sample is calculated by dividing the weight of the cleaned sample by the original weight of the sample. This value may be applied to the weight of the entire fleece to obtain a measure of the clean-wool yield. From this clean-wool yield, and the size of the measured sheared area, the clean-wool yield per square inch may be calculated. Also, the grams of clean wool per cubic inch of the fleece may be obtained by dividing the weight of clean wool per square inch by the length of staple.

Through the cooperation of the experiment stations of three States, namely, Ohio, Pennsylvania, and West Virginia, this method has been tested for its suitability under practical conditions. As in the experimental work, the results agreed satisfactorily with those of similar samples scoured individually in the Department's wool-scouring laboratory at Beltsville, Md. The results proved to be a reliable basis for estimating the wool yield and density of the entire fleece. The method provides a more dependable guide than has heretofore been available to sheep growers in building up flocks for the production of heavy-shearing, light-shrinking fleeces, and thereby increasing efficiency in wool production.

J. I. Hardy, *Bureau of Animal Industry.*

ZINC Proves Useful in the Control of Some Plant Diseases

Salts of zinc have long been known to be germicides and fungicides, but owing to their mildness they have been neglected in favor of copper and sulphur compounds by plant pathologists in their search for effective fungicides. Recent discoveries, partly accidental, have shown the value of zinc in the control of two types of plant diseases. Though in 1914 a Frenchman had shown that zinc was essential as a minor soil element for the growth of corn, this fact remained obscure until American experiment stations (1926–28) showed that zinc was essential to the normal development of several families of plants.

With increasing severity the peach has been attacked in many Eastern States by a disease known as bacterial spot (fig. 115). As the peach use in connection with the usual scouring process in which warm soap and alkali solution are used. The reliability of the drycleaning method however, has been established by the close agreement in results obtained on samples drycleaned as compared with similar samples scoured individually in a soap-and-alkali solution. In the practical operation of the drycleaning method, which is the same for large and small samples, cleaning is accomplished by delivering the sack of samples to any commercial drycleaning plant equipped for thoroughly cleaning clothing. Instructions are given that the samples be cleaned by the same procedure used in drycleaning men's suits. The National Association of Dyers and Cleaners has cooperated in working out the details of the method here described.

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With increasing severity the peach has been attacked in many Eastern States by a disease known as bacterial spot (fig. 115). As the peach is injured by copper sprays, sulphur sprays were tested, but without success. Cultural methods and fertilizing proved of some help, but up to 4 years ago the control of this disease was still a problem. From 1928 to 1930 investigators in the Bureau of Plant Industry tested 200 different fungicides in the effort to find a remedy. Practically all were ineffective or injurious, but a zinc-lime mixture (4 pounds of zinc sulphate and 4 pounds of lime to 50 gallons of water) gave good control without injury to foliage or fruit. In fact, it stimulated the trees, and larger, darker-green leaves resulted.

The publication of these results by the Bureau of Plant Industry brought a new spray mixture into use, pulled zinc out of obscurity as a fungicide, and added one more to the meager list of spray-controlled bacterial diseases.

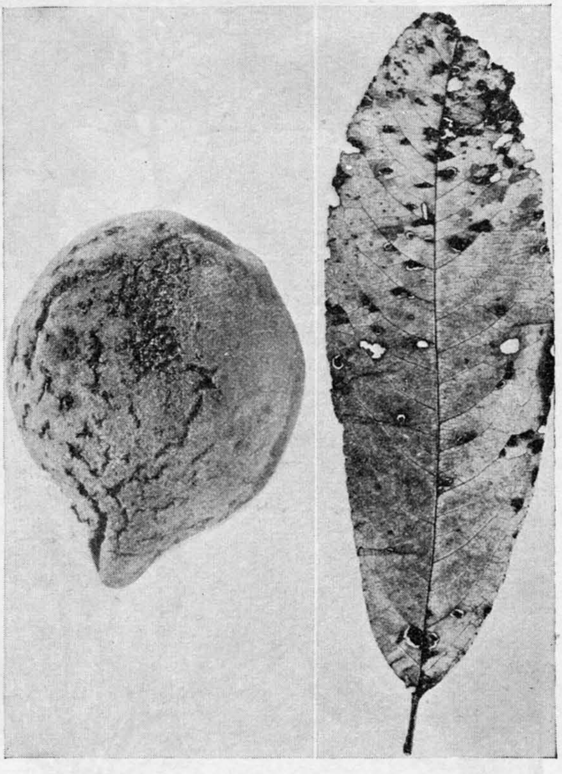

FIGURE 115.—Bacterial spot of the peach.

Rosette Disease of Pecans

Extensive new pecan plantings in the Southeast have been seriously affected by the disease known as rosette. Leaves on the diseased shoots are small, narrow, and condensed in bunches (fig. 116). In severe cases twigs and branches die back, and the tree becomes unproductive (fig. 117).

Researches carried on by the Bureau of Plant Industry had earlier brought out the fact that the disease is a noninfectious nutritional trouble resulting from soil conditions, and that humus-forming mulch or cover crops gave partial remedy. California experiment station workers, experimenting with apple rosette, a nutritional disease resembling pecan rosette, were successful with iron sulphate applied as a fertilizer, but found that the beneficial results were due to 1 percent of zinc carried as an impurity. The Department of Agriculture workers, who had also been using iron sulphate (both ferric and ferrous) successfully in a small way against pecan rosette, had dissolved the chemical in a galvanized-iron bucket and found the beneficial agent to be a zinc impurity derived from zinc in this container. Further experiments (1930–33) showed that zinc sulphate applied as a spray in dilute solution, injected into the trunk, or applied to the soil like a fertilizer, would cure the disease.

FIGURE 116.—Pecan shoot and leaves affected with the rosette disease.

FIGURE 117.—A pecan tree that has been severely affected with the rosette disease for several years.

Zinc was thus proved to be one of the few materials that can be used in the successful treatment of diseased trees by injection.

M. B. WAITE, *Bureau of Plant Industry.*

AGRICULTURAL STATISTICS

Prepared under the direction of the statistical committee: Joseph A. Becker, chairman, Paul Froehlich, secretary, S. W. Mendum ,V. N. Valgren, L. D. Howell, and F. J. Hosking.

The statistical section of this Yearbook brings together what seem from experience to be the most important agricultural statistics for the United States, and for the world so far as the agriculture of this country is concerned. Historical and geographical series have been given. Most of the data for earlier years, not covered in this Yearbook, will be found in past issues.

The crop and livestock reporting service estimates acreage, condition, yield per acre, production, and farm prices of crops, and numbers, production, farm prices, and values of livestock and livestock products. The organization of this work outside of the Crop Reporting Board and the office force in Washington consists of 40 State field offices, each with an agricultural statistician in charge. There is one field office for the New England States, one for Maryland and Delaware, one for Utah and Nevada, and one for Washington and Oregon.

Acreages for the year 1909 are as reported by the Bureau of the Census; acreages in 1919, 1924, and 1929 are based upon the census supplemented by State enumerations. In the intercensal years, from 1910 to 1915, estimated acreages were obtained by applying estimated percentages of decrease or increase to the published acreage in the preceding year. The estimates from 1916 to 1918, 1920 to 1923, 1925 to 1928, and 1930 to 1933 are based upon acreage changes from year to year as shown by a sample of over 2 percent of the crop acreages in each year, supplemented by State enumerations. Yields per acre are estimates based upon reports of one or more farmers in each agricultural township on the average yield per acre in their localities. For 1929 to 1933, yields for all crops except cotton have been adjusted to be comparable with yields derived from the census figures of 1919, 1924, and 1929. For all crops except cotton and a few minor crops, yields from 1919 to 1928 have been adjusted to be comparable with the census yields of 1919, 1924, and 1929. For these same crops, revisions of acreage have been made for the period 1919 to 1928 essentially to the acreages reported by the censuses of 1920 and 1930. For cotton, both acreage and yield have been revised to the basis of the 1930 census. Production is acreage times yield-per-acre figure. Linters are not included in cotton figures, unless so stated in the respective tables.

Estimates of farm stocks, sales, quality, crop condition, and miscellaneous information concerning crops are based either upon sample data or upon estimates of crop reporters for their localities.

The term "commercial" is used in connection with certain crop estimates to distinguish some part of the total production of a crop. Except for indicating that the entire production is not represented in the estimate, "commercial" does not have the same meaning in each instance where used. The commercial apple-crop estimate, for example, represents that portion of the total apple crop which is sold or available for sale for consumption as fresh fruit. That portion of the crop which is used for cider, vinegar, canning, evaporating, or other manufacture is not included in the commercial crop as defined in this case. The commercial orange and grapefruit crops in Florida represent the portion shipped or to be shipped as differentiated from the portion canned, made into juice, sold or consumed locally, wasted, etc.

Estimates of commercial truck-crop production are concerned only with those areas growing the crops primarily to supply the large consuming markets more or less distant from the producing center. Production in home and market gardens, intended principally for local sale, is excluded. Similarly with truck crops grown for commercial canning or manufacture the estimates include only amounts grown for use by canning or packing establishments and exclude amounts canned in the home. For the commercial acreages in the areas concerned, the truck-crop estimates are intended to include the total production suitable for food marketing purposes (unless destroyed by natural cause before harvest) whether or not the entire crop finds a market or use. It is, therefore, customary practice to retain in the production estimates those quantities of produce which ordinarily would be marketable but which are left unharvested because of adverse marketing conditions. The canning crop estimates represent the total quantity of raw product used by packers or canners for manufacturing purposes, including cold-packing.

Monthly prices received by producers on the specified dates are based upon reports from special price reporters on the average price paid to farmers for the commodity, and they do not relate to any specified grade. These men are mostly country buyers of or dealers in agricultural products.

Farm values of crops as shown are mostly computed by applying the December 1 farm price to the total production. These prices are reported by the crop reporters, who are mostly farmers. The average price received for the portion of the crop sold may be greater or less than this price, depending upon the prices previous and subsequent to December 1, and the amount of the crop sold at the different prices. For the years 1919–33, weighted average prices for the crop-marketing season, and farm values based upon these weighted prices, have displaced the December 1 prices and values for many crops. The United States averages of prices computed in this manner differ slightly from those given in the tables showing monthly farm price estimates as well. This difference is due entirely to a slight variation in the method of computation. United States averages of monthly prices used in the calculation of farm values have been obtained by weighting State averages by estimated sales, while the basic data for the crop-year averages of prices for the country as a whole, shown with the monthly farm price data, were obtained by weighting State prices by total production.

For commercial truck crops and canning crops, and for certain fruit crops, the prices shown are the estimated season averages of the prices received by growers at the shipping point, the cost of the container included if a customary requirement of delivery. The December 1 price has been employed in computing farm values only in the case of certain miscellaneous crops of minor importance, where neither weighted averages of monthly prices nor estimates of average prices for the entire marketing season are available.

Numbers of livestock on farms on January 1, 1920, and 1925, are based upon the census enumeration as of that date, supplemented by enumerations by State agencies, such as assessors' and brand-inspection boards, and by records of shipments during 1920 and 1925. Numbers on January 1, 1930, give weight insofar as feasible to the numbers reported by the census of 1930 which was as of April 1, with allowance for indicated changes between January 1 and April 1. In the intercensal years, from 1911 to 1919, the numbers of livestock were obtained by methods similar to those used for crop acreages. Estimates from 1921 to 1924, from 1926 to 1929, and from 1931 to 1934 are based upon a sample of over 2 percent, supplemented by trends derived from assessors' enumerations, reports of brand-inspection boards, market movements, and stockyard receipts. The census bases are not always comparable from one decade to another, because of changes of dates and classifications.

The average value per head on January 1 is estimated from reports of correspondents relating to livestock in their vicinity. These tend to reflect inventory values as distinguished from the monthly prices which relate to sales. The farm value on January 1 is computed by applying the average value per head to the number on farms.

The Federal market news service supplies much of the information on market prices and movements. The leased-wire system in use by the service extends from the Atlantic to the Pacific and reaches most of the important markets of the country. At each of the branch offices commodity specialists gather information regarding the supply, the market demand, and prices for the products on which they report. They observe the sales actually made on the markets and are constantly in touch with the traders, who in many instances give them access to their office records in order that they may have specific information on which to base their reports. Car-lot shipments and market receipts of crops and livestock products are reported by officials and agents of railroads, express companies, and boat lines, or compiled from trade publications. Shipments to market by motor truck have continued important and at a few of these markets receipts by truck are reported by dealers and distributors. Data on receipts, slaughter, and shipments of livestock are obtained from monthly reports submitted by the public stockyards. Data on cold-storage stocks are obtained directly from all important cold-storage warehouses, and data on commercial stocks of grain are reported by boards of trade, etc. Leaf-tobacco stocks are reported directly by dealers and manufacturers.

Where a weighting factor is available, market prices as shown are weighted averages; but in many cases a weighting factor is not available, and the prices shown are usually the means of ranges of quotations without reference to quantity.

Prices derived from different sources may not be strictly comparable although for most general purposes they are satisfactory. The data as to commercial stocks and movements of various commodities are as nearly complete as practicable and feasible, and are considered fairly representative.

The statistics of grain grading are based on work done by licensed grain inspectors located throughout the United States.

The tables of international trade cover substantially the international trade of the world. The total imports and the total exports in any one year cannot be expected to balance, although disagreements tend to be compensated over a series of years. Among the sources of disagreement are: The different periods covered by the "year" of various countries; imports received in the year subsequent to the year of export; lack of uniformity in classification of goods as among countries; different trade practices and varying degrees of failure in recording countries of origin and ultimate destinations; different practices in recording reexported goods; and different methods of treating free ports. The exports given are domestic exports and the imports given are imports for consumption whenever it is possible to distinguish such imports from general imports; that is, "special" or net instead of general. General imports are all imports reported. In foreign countries "special" trade is imports for consumption; or net imports, or imports less reexports. In the United States imports for consumption are those entered for actual consumption and include withdrawals from bonded warehouses for consumption. Special or net figures are used in the international trade tables for the following countries: Belgium, Denmark, Egypt, Irish Free State, China, Dutch East Indies, France, and United Kingdom. In the United States trade tables and wherever United States figures are given, they are domestic exports and general imports unless otherwise specified. While there are some inevitable omissions, there may be some duplication because of reshipments which do not appear as such in the official reports. In the trade tables, figures for the United States include Alaska, Puerto Rico, and Hawaii, but not the Philippine Islands or the Virgin Islands of the United States.

In order to make the statements of 1933 and 1934 prices and values comparable with similar data for earlier periods, there is given below a tabulation of the gold value of the dollar since April 1, 1933:

Gold value of the dollar, and dollar value of gold in London,[1] *April 1933–March 1934*

Date	Gold value of the dollar	Dollar value of gold per ounce		Date	Gold value of the dollar	Dollar value of gold per ounce		Date	Gold value of the dollar	Dollar value of gold per ounce	
		Actual	Relative			Actual	Relative			Actual	Relative
1933	*Cents*	*Dollars*		1933	*Cents*	*Dollars*		1933	*Cents*	*Dollars*	
Apr. 1-15 [2]	100.0	20.67	100.0	Aug. 8	74.0	27.92	135.1	Dec. 11	63.2	32.73	158.3
Apr. 3	100.2	20.62	99.8	14	74.7	27.68	133.9	18	63.5	32.54	157.4
10	100.1	20.64	99.9	21	73.2	28.23	136.6	27	63.7	32.43	156.9
17	100.0	20.67	100.0	28	71.2	29.04	140.5				
24	90.2	22.92	110.9	Sept. 5	69.5	29.74	143.9	1934			
May 1	85.9	24.07	116.4	11	70.6	29.28	141.7	Jan. 2	62.9	32.88	159.1
8	84.9	24.35	117.8	18	65.8	31.41	152.0	8	64.1	32.24	156.0
15	84.8	24.39	118.0	25	65.6	31.49	152.3	15	62.9	32.86	159.0
22	86.5	23.89	115.6	Oct. 2	64.8	31.92	154.4	22	62.0	33.33	161.2
29	84.1	24.59	119.0	9	66.6	31.04	150.1	29	62.5	33.06	159.9
June 6	83.4	24.78	119.9	16	71.8	28.78	139.2	Feb. 5	59.9	34.51	167.0
12	80.9	25.54	123.6	23	69.3	29.83	144.3	13	59.9	34.50	166.9
19	81.6	25.34	122.6	30	65.6	31.52	152.5	19	59.8	34.56	167.2
26	79.6	25.95	125.5	Nov. 6	64.3	32.16	155.8	26	59.6	34.67	167.7
July 3	75.1	27.54	133.2	13	62.3	33.19	160.6	Mar. 5	59.5	34.72	168.0
10	69.3	29.83	144.3	20	61.2	33.78	163.4	12	59.5	34.74	168.1
17	69.3	29.82	144.3	27	63.1	32.75	158.4	19	59.5	34.74	168.1
24	71.6	28.88	139.7	Dec. 4	64.1	32.23	155.9	26	59.4	34.77	168.2
31	74.3	27.81	134.5								

[1] Based on the open market price of gold in London, converted at the dollar exchange rate at the "fixing of the gold price" each day at 11 a.m. (London time).

[2] Par.

Bureau of Agricultural Economics. Values are for Monday unless it falls on a holiday, when they are for the next business day.

Statistics of acreage and production in foreign countries are compiled as far as possible from official sources and are therefore subject to whatever errors may result from shortcomings in the reporting and statistical services of the various countries. Inaccuracies also result from differences in nomenclature and classification in foreign countries. Except where otherwise stated, pre-war data refer to pre-war boundaries. Yields per acre are calculated from acreage and production, both rounded to thousand units, and are therefore subject to a greater possibility of error when calculated for countries with small acreage.

Agricultural Adjustment Administration work did not get under way until the middle of 1933. This issue of the Yearbook contains four summary tables, indicating in a general way some of the results of that work, but the reports are only preliminary and somewhat incomplete. These tables comprise the last pages in the section on Farm Business and Related Statistics.

As an aid to the comprehension and use of these statistics, the following table of weights, measures, and conversion factors will be useful. It represents the important basic figures, commonly used in the Department of Agriculture:

Weights, measures, and conversion factors used in the Department of Agriculture

Commodity	Unit [1]	Weight in pounds	Commodity	Unit [1]	Weight in pounds
Alfalfa seed	Bushel	60	Peanut oil	Gallon	7.5
Apricots	do	48	Potatoes	Bushel	60
Barley	do	48	Rapeseed	do	50
Beans, dry	do	60	Rice, rough	do	45
Buckwheat	do	48	Rice, milled	Pocket	100
Clover seed	do	60	Rye	Bushel	56
Corn, ear, husked	do	[2] 70	Soybean oil	Gallon	7.5
Corn, shelled	do	56	Spelt	Bushel	40
Cotton, ginned	Bale	[3] 500 [4] 478	Timothy seed	do	45
			Tomatoes	do	56
Cottonseed oil	Gallon	7.5	Wheat	do	60
Cranberries	Barrel	100	Production of the following commodities is given in short tons: Almonds, apricots, avocados, broomcorn, cabbage, cherries, cottonseed, dates, figs, filberts, fruits for drying, grapes, hay, olives, plums and prunes, raisins, sugar, sugar beets, sugarcane, vegetables for manufacture, velvetbeans, and walnuts	Short ton	2,000
Flaxseed	Bushel	56			
Flour, various	Barrel	196			
Grain sorghums	Bushel	56			
Grapefruit (Florida)	Box	[4] 73			
Grapefruit (California)	do	[4] 60			
Hempseed	Bushel	44			
Lemons	Box	[4] 74			
Milk	Gallon	8.6			
Oats	Bushel	32			
Oranges (Florida)	Box	[4] 83			
Oranges (California)	do	[4] 70			
Orchard grass	Bushel	14			

Commodity	Unit	Equivalent to—
Almonds	1 pound shelled	About 3⅓ pounds unshelled.
Apples	1 pound dried	About 7 pounds fresh.
Do	1 barrel	3 boxes or 3 bushel baskets.
Barley flour	1 barrel (196 pounds)	About 9 bushels of barley.
Buckwheat flour	1 barrel (196 pounds)	About 7 bushels of buckwheat.
Filberts	1 pound shelled	About 2.22 pounds unshelled.
Malt	1.1 bushel	About 1 bushel of barley.
Oatmeal	1 barrel (196 pounds)	About 10⅚ bushels of oats.
Peaches (California)	1 pound dried	About 5½ pounds fresh.
Peanuts	1 pound shelled	About 1½ pounds unshelled.
Prunes	1 pound dried	About 2½ pounds fresh in California; 3 to 4 pounds in other States.
Raisins	1 pound	About 4 pounds of fresh grapes.
Rye flour	1 barrel (196 pounds)	About 6 bushels of rye.
Walnuts, English	1 pound shelled	About 2.38 pounds unshelled.
Wheat flour	1 barrel (196 pounds)	About 4.7 bushels of wheat.[5]

[1] Standard bushel used in the United States contains 2,150.42 cubic inches; the gallon, 231 cubic inches.
[2] The standard weight of 70 pounds is usually recognized as being about 2 measured bushels of corn (husked) on the ear, as it requires 70 pounds to yield 1 bushel, or 56 pounds, of shelled corn.
[3] Gross.
[4] Net. The 478 pounds per net bale of cotton is only approximate.
[5] Due to changes in milling processes, equivalents used have varied as follows: 1790–1879, 5 bushels; 1880–1908, 4.75 bushels: 1909–17, 4.7 bushels; 1918 and 1919, 4.5 bushels; 1920, 4.6 bushels, and 1921–33, 4.7 bushels.

STATISTICS OF GRAINS

TABLE 1.—*Wheat: Acreage, production value, foreign trade, etc., United States, 1890–1933*

Year	Acreage harvested	Average yield per acre	Production	Price per bushel received by producers Dec. 1 [1]	Farm value, basis Dec. 1 price	Spring wheat, price per bushel at Chicago, year beginning July [2]	No. 2 red winter wheat, price per bushel at Chicago, year beginning July [3]	Foreign trade, including flour, year beginning July [4]			
								Domestic exports [5]	Imports [6]	Net exports [7]	
										Total	Percentage of production
	1,000 acres	*Bu.*	*1,000 bushels*	*Cents*	*1,000 dollars*	*Cents*	*Cents*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Percent*
1890	34,048	11.1	378,097	83.3	315,112	97	89	109,017	586	109,054	28.8
1891	37,826	15.5	584,504	83.4	487,463	89	96	229,465	2,463	228,841	39.2
1892	39,552	13.3	527,987	62.2	328,331	73	78	196,068	968	195,672	37.1
1893	37,934	11.3	427,553	53.5	228,599	60	68	168,498	1,183	167,531	39.2
1894	39,425	13.1	516,485	48.9	252,709	57	57	148,630	1,439	147,740	28.6
1895	40,848	13.9	569,456	50.3	286,539	61	62	130,099	2,117	130,345	22.9
1896	43,916	12.4	544,193	71.7	390,346	70	67	148,767	1,545	148,725	27.3
1897	46,046	13.3	610,254	80.9	493,683	91	86	221,143	2,060	220,965	36.2
1898	51,007	15.1	772,163	58.2	449,022	71	90	227,240	1,875	227,300	29.4
1899	*52,589*	*12.5*	*658,534*	-----	-----	-----	-----	-----	-----	-----	-----
1899	52,589	12.1	636,051	58.6	372,982	70	[8] 72	190,772	320	190,749	30.0
1900	51,387	11.7	602,708	62.0	373,578	75	76	220,653	603	220,723	36.6
1901	52,473	15.0	788,638	62.6	493,766	74	72	239,212	121	239,137	30.3
1902	40,649	14.6	724,808	63.0	456,851	77	75	207,835	1,080	208,016	28.7
1903	51,632	12.9	663,923	69.5	461,439	90	83	124,977	229	124,926	18.8
1904	47,825	12.5	596,911	92.4	551,788	114	[9] 100	46,319	3,296	43,612	7.3
1905	49,389	14.7	726,819	74.6	542,543	89	[8] 88	101,089	273	100,849	13.9
1906	47,800	15.8	756,775	66.2	501,316	84	77	150,597	602	150,594	19.9
1907	45,116	14.1	637,981	86.5	552,074	107	90	166,525	530	166,304	26.1
1908	45,970	14.0	644,656	92.2	594,128	116	96	116,373	475	115,901	18.0
1909	*44,263*	*15.4*	*683,379*	-----	-----	-----	-----	-----	-----	-----	-----
1909	44,262	15.8	700,434	98.4	689,108	114	110	89,173	845	88,465	12.6
1910	45,681	13.9	635,121	88.3	561,051	107	102	71,338	1,175	70,164	11.0
1911	49,543	12.5	621,338	87.4	543,063	110	90	81,891	3,445	78,447	12.6
1912	45,814	15.9	730,267	76.0	555,280	94	103	145,159	1,304	143,938	19.7
1913	50,184	15.2	763,380	79.9	610,122	93	88	147,955	2,402	146,306	19.2
1914	53,541	16.6	891,017	98.6	878,680	132	108	335,702	728	335,162	37.6
1915	60,469	17.0	1,025,801	91.9	942,303	120	113	246,221	7,254	239,591	23.4
1916	52,316	12.2	636,318	160.3	1,019,968	196	168	205,962	24,960	181,067	28.5
1917	45,089	14.1	636,655	200.8	1,278,112	227	225	132,579	31,215	102,775	16.1
1918	59,181	15.6	921,438	204.2	1,881,826	234	222	287,402	11,289	276,615	30.0
1919	*73,099*	*12.9*	*945,403*	-----	-----	-----	-----	-----	-----	-----	-----
1919	73,700	12.9	952,097	216.3	2,059,421	276	224	222,030	5,511	216,671	22.8
1920	62,358	13.5	843,277	182.6	1,539,584	198	223	369,313	57,682	312,625	37.1
1921	64,566	12.7	818,964	103.0	843,458	136	125	282,566	17,375	265,590	32.4
1922	61,397	13.8	846,649	96.6	817,929	122	114	224,900	20,031	205,079	24.2
1923	56,920	13.3	759,482	92.6	703,283	119	102	159,880	28,079	131,892	17.4
1924	*50,862*	*15.7*	*800,877*	-----	-----	-----	-----	-----	-----	-----	-----
1924	52,460	16.0	840,091	124.7	1,047,703	155	158	260,803	6,201	254,695	30.3
1925	52,441	12.8	669,142	143.7	961,801	166	164	108,035	15,679	92,669	13.8
1926	56,815	14.7	833,544	121.7	1,014,623	140	138	219,160	13,264	205,994	24.7
1927	59,628	14.7	874,733	119.0	1,041,209	140	140	206,259	15,734	190,578	21.8
1928	59,226	15.4	912,961	99.8	911,065	118	138	163,687	21,442	142,301	15.6
1929	*62,000*	*12.9*	*800,649*	-----	-----	-----	-----	-----	-----	-----	-----
1929	63,320	13.0	822,180	103.4	850,308	127	130	153,245	12,956	140,361	17.1
1930	62,661	14.2	889,702	67.0	596,096	84	86	131,475	19,059	112,435	12.6
1931	57,103	16.3	932,221	39.0	363,727	56	52	135,797	12,886	123,774	13.3
1932	57,204	13.0	744,076	37.9	282,203	55	53	41,211	9,382	32,284	4.3
1933[10]	47,493	11.1	527,413	73.1	385,365	-----	-----	-----	-----	-----	-----

[1] Beginning with 1919 prices are weighted average prices for crop marketing season.

[2] 1890–96, Bartel's Red Book, quoted as No. 2 spring; January 1897–June 1904, Chicago Daily Trade Bulletin, average of daily ranges; quotations used: January–October 1897, No. 3 spring; November 1897–June 1898, No. 3 spring, hard varieties; July 1898–June 1904, No. 1 spring; from February 1897, "free on board" was used when available; July 1904–December 1918, Bartel's Red Book, average of daily ranges, quoted as No. 1 northern. Subsequently from the Chicago Daily Trade Bulletin and are averages of the daily cash price per bushel weighted by car-lot sales.

[3] Prices, 1890–98, are from the Price Current Grain Reporter 1924 Yearbook, p. 4, and are average cash prices for calendar years; subsequently from the Chicago Daily Trade Bulletin and are averages of the daily cash price per bushel weighted by car-lot sales.

[4] Compiled from Commerce and Navigation of the United States, 1890–1917; Foreign Commerce and Navigation of the United States, 1918; Monthly Summary of Foreign Commerce of the United States, June issues, 1919–26; January and June issues, 1927–33. Wheat flour converted to terms of grain on the following basis: 1890–1908, 4.75; 1909–17, 4.7; 1918 and 1919, 4.5; 1920, 4.6; 1921–33, 4.7 bushels of grain per barrel of flour.

[5] Includes flour milled from imported wheat.

[6] Includes wheat imported for milling in bond and export.

[7] Total exports (domestic plus foreign) minus total imports.

[8] Weighted average for 11 months.

[9] Weighted average for 10 months.

[10] Preliminary.

Bureau of Agricultural Economics.

Production figures are estimates of the Crop Reporting Board, revised 1919–28. See introductory text; italic figures are census returns.

TABLE 2.—*Wheat, winter, durum, and other spring: Acreage sown and harvested, and production, United States, 1919–33*

Year	Winter wheat				Durum wheat [1]			Other spring wheat		
	Acreage sown in preceding fall	Acreage harvested	Average yield per acre	Production	Acreage harvested	Average yield per acre	Production	Acreage harvested	Average yield per acre	Production
	1,000 acres	*1,000 acres*	*Bushels*	*1,000 bushels*	*1,000 acres*	*Bushels*	*1,000 bushels*	*1,000 acres*	*Bushels*	*1,000 bushels*
1919	51, 391	50, 404	14. 8	748, 460	3, 893	7. 3	28, 324	19, 403	9. 0	175, 313
1920	45, 505	40, 409	15. 2	613, 227	4, 400	9. 9	43, 550	17, 549	10. 6	186, 500
1921	45, 479	43, 160	14. 0	602, 793	6, 009	9. 0	54, 212	15, 397	10. 5	161, 959
1922	47, 415	41, 649	13. 7	571, 459	5, 659	14. 5	82, 245	14, 089	13. 7	192, 945
1923	45, 408	38, 712	14. 3	555, 299	4, 064	9. 6	38, 961	14, 144	11. 7	165, 222
1924	38, 635	35, 415	16. 1	571, 558	3, 674	16. 1	59, 114	13, 371	15. 7	209, 419
1925	40, 920	31, 962	12. 5	401, 116	4, 158	14. 0	58, 010	16, 321	12. 9	210, 016
1926	40, 603	37, 596	16. 8	631, 950	4, 577	9. 3	42, 469	14, 642	10. 9	159, 125
1927	44, 134	38, 195	14. 3	547, 666	5, 445	14. 4	78, 359	15, 988	15. 6	248, 708
1928	48, 431	36, 853	15. 7	577, 417	6, 804	14. 1	95, 802	15, 569	15. 4	239, 742
1929	43, 918	41, 188	14. 2	586, 055	5, 571	9. 8	54, 710	16, 561	11. 0	181, 415
1930	44, 971	40, 933	15. 4	631, 205	4, 745	12. 2	57, 719	16, 983	11. 8	200, 778
1931	45, 240	43, 080	19. 0	817, 962	2, 960	7. 0	20, 712	11, 063	8. 5	93, 547
1932	42, 348	35, 276	13. 5	475, 709	3, 946	10. 3	40, 600	17, 982	12. 7	227, 767
1933 [2]	42, 692	28, 420	12. 4	351, 030	2, 310	7. 0	16, 109	16, 763	9. 6	160, 274

[1] Figures on durum apply to 4 States only—Minnesota, North Dakota, South Dakota, and Montana.
[2] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board, revised, 1919-28; see introductory text.

TABLE 3.—*Wheat, winter: Acreage seeded and percentage of acreage abandoned, by States, averages, and annual 1931–33*

State and division	Area sown in autumn of—				Percentage abandoned [1]			
	Average, 1926–30	1931	1932	1933 [2]	Average, 1921–30	1931	1932	1933 [2]
	1,000 acres	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Percent*	*Percent*	*Percent*	*Percent*
New York	258	194	233	270	3. 9	0. 5	1. 5	3. 5
New Jersey	56	48	46	46	2. 5	. 5	. 5	2. 0
Pennsylvania	1, 010	898	893	902	2. 8	4. 0	1. 0	2. 5
North Atlantic	1, 324	1, 140	1, 172	1, 218	3. 0	3. 2	1. 1	2. 6
Ohio	1, 824	1, 592	1, 865	1, 790	13. 6	1. 0	1. 0	2. 0
Indiana	1, 866	1, 499	1, 622	1, 671	10. 7	1. 0	3. 0	5. 0
Illinois	2, 377	1, 601	1, 713	1, 850	11. 8	. 5	3. 0	3. 0
Michigan	779	698	833	808	3. 6	1. 5	1. 0	3. 0
Wisconsin	41	39	36	36	11. 2	4. 0	6. 0	12. 0
Minnesota	202	180	188	179	11. 4	3. 0	5. 3	16. 0
Iowa	409	257	232	290	5. 3	3. 5	11. 0	9. 0
Missouri	1, 715	1, 553	1, 413	1, 554	8. 2	1. 0	10. 0	6. 0
South Dakota	141	251	348	296	16. 8	25. 0	10. 0	50. 0
Nebraska	3, 784	3, 120	2, 890	3, 034	9. 4	6. 0	33. 5	30. 0
Kansas	13, 214	12, 945	12, 853	11, 953	13. 7	2. 0	20. 1	47. 4
North Central	26, 353	23, 735	23, 993	23, 461	11. 7	2. 5	16. 8	31. 1
Delaware	103	81	80	78	2. 0	5. 0	2. 0	4. 0
Maryland	488	400	401	389	2. 2	6. 0	5. 0	1. 5
Virginia	632	588	561	561	2. 6	2. 0	1. 5	2. 0
West Virginia	112	117	126	139	4. 4	2. 5	1. 0	1. 5
North Carolina	352	380	399	435	3. 0	1. 5	1. 0	2. 0
South Carolina	56	82	77	81	5. 3	2. 0	2. 5	4. 0
Georgia	59	77	71	78	10. 2	3. 0	4. 0	5. 0
South Atlantic	1, 804	1, 725	1, 715	1, 761	3. 2	3. 2	2. 4	2. 2
Kentucky	267	307	290	313	13. 2	3. 0	12. 0	7. 0
Tennessee	320	280	282	310	7. 1	1. 5	3. 0	3. 5
Alabama	3	6	4	4	8. 7	1. 0	3. 0	10. 0
Arkansas	25	34	31	33	9. 4	2. 5	10. 0	12. 0
Oklahoma	4, 757	4, 407	4, 419	4, 198	10. 2	4. 5	10. 0	30. 0
Texas	3, 561	4, 474	4, 491	4, 042	17. 1	4. 5	25. 6	56. 1
South Central	8, 935	9, 508	9, 517	8, 900	12. 2	4. 4	17. 2	40. 7

[1] For entire season, planting to harvest. Includes winter abandonment, which is estimated on May 1 of each season.
[2] Preliminary.

TABLE 3.—*Wheat, winter: Acreage seeded and percentage of acreage abandoned, by States, averages, and annual 1931–33*—Continued

State and division	Area sown in autumn of—				Percentage abandoned [1]			
	Average, 1926–30	1931	1932	1933 [2]	Average, 1921–30	1931	1932	1933 [2]
	1,000 acres	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Percent*	*Percent*	*Percent*	*Percent*
Montana	837	772	865	692	23.0	50.0	20.0	25.0
Idaho	682	701	669	636	6.0	4.0	7.0	20.0
Wyoming	154	228	202	182	11.3	22.0	35.0	50.0
Colorado	1,686	1,218	893	938	24.5	15.0	60.0	70.0
New Mexico	372	453	400	340	40.6	4.3	45.9	45.0
Arizona	24	39	47	42	4.1	0	1.5	2.0
Utah	188	192	189	174	2.8	5.0	4.0	5.0
Nevada	4	1	2	3	1.8	0	5.0	1.0
Washington	1,335	1,185	1,392	1,114	16.3	4.0	6.0	60.0
Oregon	894	782	900	864	9.6	5.0	4.0	75.0
California	750	669	736	677	17.9	25.5	11.1	11.0
Western	6,923	6,240	6,295	5,662	18.5	14.9	22.5	45.4
United States	45,339	42,348	42,692	41,002	12.2	4.8	16.7	33.4

[1] For entire season, planting to harvest. Includes winter adandonment, which is estimated on May 1 of each season.
[2] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 4.—*Wheat: Acreage, production, and weighted average price per bushel received by producers, by States, average 1926–30, and annual 1931–33*

State and division	Acreage harvested				Production				Price for crop of—		
	Average, 1926–30	1931	1932	1933 [1]	Average, 1926–30	1931	1932	1933 [1]	1931	1932	1933 [2]
	1,000 acres	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Cents*	*Cents*	*Cents*
Maine	3	2	3	5	58	44	66	120	77	75	129
Vermont	1	1	------	------	27	21	------	------	73	------	------
New York	272	211	201	233	4,772	5,311	4,086	4,512	57	58	87
New Jersey	58	49	48	45	1,275	1,323	1,008	990	61	59	92
Pennsylvania	1,026	909	898	878	18,684	19,987	13,465	15,783	56	57	85
North Atlantic	1,360	1,172	1,150	1,161	24,815	26,686	18,625	21,405	56.5	57.1	86.0
Ohio	1,468	1,723	1,585	1,833	27,312	50,744	32,456	34,812	45	47	84
Indiana	1,550	1,725	1,468	1,551	25,946	44,544	23,502	22,484	40	43	84
Illinois	2,055	2,016	1,652	1,721	33,587	46,980	24,978	27,418	40	42	82
Michigan	796	711	702	818	15,207	18,426	16,771	13,457	46	45	76
Wisconsin	110	88	110	104	2,129	1,544	2,109	1,616	57	53	81
Minnesota	1,602	1,224	1,462	1,629	22,089	18,011	20,839	16,665	51	44	72
Iowa	432	357	273	255	8,390	7,321	4,350	4,159	40	38	75
Missouri	1,472	1,596	1,404	1,331	18,413	31,913	15,733	16,639	40	41	80
North Dakota	10,117	6,295	10,639	9,554	115,035	40,216	110,396	65,386	46	36	67
South Dakota	3,347	2,796	3,958	1,248	36,122	16,718	53,468	5,120	43	34	64
Nebraska	3,662	3,420	2,277	2,437	62,209	56,943	27,958	29,206	34	36	70
Kansas	11,386	13,623	10,365	6,774	156,650	251,892	120,178	57,504	33	33	76
North Central	37,997	35,574	35,895	29,255	523,089	585,252	452,738	294,466	37.9	37.4	75.3
Delaware	105	91	79	77	1,998	2,138	908	1,078	50	57	92
Maryland	493	404	380	395	9,690	9,696	4,940	6,320	50	53	90
Virginia	619	603	579	550	8,975	13,266	6,253	7,425	56	58	92
West Virginia	109	113	116	124	1,604	2,373	1,276	1,798	61	60	89
North Carolina	346	339	376	391	3,638	4,407	3,572	3,714	71	69	103
South Carolina	52	53	80	74	537	689	760	592	78	65	104
Georgia	61	49	74	67	572	637	703	536	81	68	106
South Atlantic	1,785	1,652	1,684	1,678	27,012	33,206	18,412	21,463	57.1	59.6	93.7

[1] Preliminary.
[2] Average price for 6 months.

TABLE 4.—*Wheat: Acreage, production, and weighted average price per bushel received by producers, by States, average 1926–30, and annual 1931–33*—Con.

State and division	Acreage harvested				Production				Price for crop of—		
	Average, 1926–30	1931	1932	1933 [1]	Average, 1926–30	1931	1932	1933 [1]	1931	1932	1933 [2]
	1,000 acres	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Cents*	*Cents*	*Cents*
Kentucky	208	252	270	270	2, 742	5, 544	2, 835	3, 240	49	48	92
Tennessee	308	252	272	272	3, 307	4, 410	2, 584	2, 774	62	60	97
Alabama	3	4	6	4	29	50	60	34	64	59	95
Arkansas	20	36	31	27	199	475	248	216	49	44	86
Oklahoma	4, 254	4, 407	3, 966	3, 093	52, 386	74, 919	43, 626	33, 095	33	32	77
Texas	2, 638	4, 386	3, 330	1, 973	33, 740	68, 097	28, 293	13, 022	36	32	78
South Central	7, 431	9, 337	7, 875	5, 639	92, 416	153, 495	77, 646	52, 381	35. 8	33. 6	79. 3
Montana	4, 128	2, 182	4, 070	3, 653	56, 447	14, 478	55, 610	27, 194	50	34	57
Idaho	1, 245	981	1, 192	1, 075	28, 511	17, 577	30, 656	19, 365	34	31	54
Wyoming	309	240	277	234	4, 305	2, 192	3, 102	2, 138	44	31	56
Colorado	1, 606	1, 386	680	548	20, 996	16, 632	7, 135	5, 912	33	37	63
New Mexico	231	473	276	245	2, 791	9, 599	2, 027	1, 485	35	36	71
Arizona	24	24	38	46	520	672	798	1, 288	74	55	80
Utah	251	257	260	254	5, 691	4, 291	5, 332	4, 079	52	41	65
Nevada	16	14	18	17	386	319	461	378	79	59	79
Washington	2, 222	2, 348	2, 203	2, 136	44, 432	42, 597	40, 348	46, 249	37	38	59
Oregon	1, 057	945	991	897	23, 013	17, 662	20, 060	17, 492	38	41	62
California	668	518	595	655	12, 200	7, 563	11, 126	12, 118	58	53	78
Western	11, 757	9, 368	10, 600	9, 760	199, 292	133, 582	176, 655	137, 698	39. 6	36. 8	60. 6
United States	60, 330	57, 103	57, 204	47, 493	866, 624	932, 221	744, 076	527, 413	39. 0	37. 9	73. 1

[1] Preliminary. [2] Average price for 6 months.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 5.—*Wheat, winter, durum, and other spring: Acreage, yield, and production, by States, averages, and annual 1932 and 1933*

WINTER WHEAT

State and division	Acreage harvested			Yield per acre			Production		
	Average, 1926–30	1932	1933 [1]	Average, 1921–30	1932	1933 [1]	Average, 1926–30	1932	1933 [1]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
New York	262	191	225	18. 4	20. 5	19. 5	4, 593	3, 916	4, 388
New Jersey	58	48	45	20. 9	21. 0	22. 0	1, 275	1, 008	990
Pennsylvania	1, 016	889	871	18. 0	15. 0	18. 0	18, 513	13, 335	15, 678
North Atlantic	1, 336	1, 128	1, 141	18. 2	16. 2	18. 5	24, 381	18, 259	21, 056
Ohio	1, 456	1, 576	1, 828	16. 9	20. 5	19. 0	27, 073	32, 308	34, 732
Indiana	1, 539	1, 454	1, 541	15. 6	16. 0	14. 5	25, 751	23, 264	22, 344
Illinois	1, 915	1, 553	1, 662	16. 4	15. 0	16. 0	30, 820	23, 295	26, 592
Michigan	788	691	808	18. 5	24. 0	16. 5	15, 060	16, 584	13, 332
Wisconsin	44	37	32	18. 4	19. 5	14. 5	850	722	464
Minnesota	170	170	158	18. 4	21. 0	15. 0	3, 241	3, 570	2, 370
Iowa	384	229	211	19. 8	16. 5	17. 0	7, 612	3, 778	3, 587
Missouri	1, 461	1, 398	1, 328	12. 6	11. 2	12. 5	18, 265	15, 358	16, 600
South Dakota	90	226	174	14. 0	19. 0	5. 0	1, 273	4, 294	870
Nebraska	3, 476	2, 075	2, 023	15. 4	12. 5	12. 8	59, 277	25, 938	25, 894
Kansas	11, 354	10, 347	6, 759	13. 0	11. 6	8. 5	156, 310	120, 025	57, 452
North Central	22, 675	19, 756	16, 524	14. 6	13. 6	12. 4	345, 532	269, 436	204, 237
Delaware	105	79	77	17. 8	11. 5	14. 0	1, 998	908	1, 078
Maryland	493	380	395	18. 7	13. 0	16. 0	9, 690	4, 940	6, 320
Virginia	619	579	550	13. 8	10. 8	13. 5	8, 975	6, 253	7, 425
West Virginia	109	116	124	13. 5	11. 0	14. 5	1, 604	1, 276	1, 798
North Carolina	346	376	391	9. 9	9. 5	9. 5	3, 638	3, 572	3, 714
South Carolina	52	80	74	9. 6	9. 5	8. 0	537	760	592
Georgia	61	74	67	8. 7	9. 5	8. 0	572	703	536
South Atlantic	1, 785	1, 684	1, 678	14. 2	10. 9	12. 8	27, 012	18, 412	21, 463

[1] Preliminary.

TABLE 5.—*Wheat, winter, durum, and other spring: Acreage, yield, and production, by States, averages, and annual 1932 and 1933*—Continued

WINTER WHEAT—Continued

State and division	Acreage harvested			Yield per acre			Production		
	Average, 1926–30	1932	1933 [1]	Average, 1921–30	1932	1933 [1]	Average, 1926–30	1932	1933 [1]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Kentucky	208	270	270	12.4	10.5	12.0	2,742	2,835	3,240
Tennessee	308	272	272	10.5	9.5	10.2	3,307	2,584	2,774
Alabama	3	6	4	10.7	10.0	8.5	29	60	34
Arkansas	20	31	27	10.1	8.0	8.0	199	248	216
Oklahoma	4,254	3,966	3,093	11.7	11.0	10.7	52,386	43,626	33,095
Texas	2,638	3,330	1,973	11.6	8.5	6.6	33,740	23,293	13,022
South Central	7,431	7,875	5,639	11.7	9.9	9.3	92,416	77,646	52,381
Montana	668	618	649	15.3	20.0	9.5	9,830	12,360	6,166
Idaho	634	652	535	19.9	23.0	15.0	12,867	14,996	8,025
Wyoming	109	148	101	15.4	10.5	8.0	1,637	1,554	808
Colorado	1,277	487	268	12.2	9.5	9.0	15,969	4,626	2,412
New Mexico	200	245	220	9.9	6.5	5.5	2,383	1,593	1,210
Arizona	24	38	46	20.3	21.0	28.0	520	798	1,288
Utah	173	184	180	18.7	17.0	13.0	3,419	3,128	2,340
Nevada	4	1	2	23.5	19.0	24.0	100	19	48
Washington	1,093	1,114	557	23.5	24.0	23.5	27,016	26,736	13,090
Oregon	875	751	225	21.8	20.0	19.5	19,577	15,020	4,388
California	668	595	655	18.2	18.7	18.5	12,200	11,126	12,118
Western	5,726	4,833	3,438	18.0	19.0	15.1	105,517	91,956	51,893
United States	38,953	35,276	28,420	14.7	13.5	12.4	594,859	475,709	351,030

DURUM WHEAT

State and division	Acreage, average 1926–30	Acreage, 1932	Acreage, 1933 [1]	Yield, average 1921–30	Yield, 1932	Yield, 1933 [1]	Production, average 1926–30	Production, 1932	Production, 1933 [1]
Minnesota	243	110	88	14.6	13.0	10.0	3,411	1,430	880
North Dakota	3,893	2,867	2,093	12.2	9.5	7.0	48,088	27,236	14,651
South Dakota	1,268	929	93	12.3	12.2	3.5	14,029	11,334	326
Montana	24	40	36	12.7	15.0	7.0	284	600	252
Total	5,428	3,946	2,310	12.3	10.3	7.0	65,812	40,600	16,109

OTHER SPRING WHEAT

State and division	Acreage, average 1926–30	Acreage, 1932	Acreage, 1933 [1]	Yield, average 1921–30	Yield, 1932	Yield, 1933 [1]	Production, average 1926–30	Production, 1932	Production, 1933 [1]
Maine	3	3	5	21.5	22.0	24.0	58	66	120
Vermont	1			18.8			27		
New York	10	10	8	17.6	17.0	15.5	178	170	124
Pennsylvania	10	9	7	16.7	14.5	15.0	171	130	105
North Atlantic	24	22	20	18.2	16.6	17.4	434	366	349
Ohio	12	9	5	19.6	16.5	16.0	238	148	80
Indiana	11	14	10	17.0	17.0	14.0	195	238	140
Illinois	140	99	59	19.2	17.0	14.0	2,767	1,683	826
Michigan	8	11	10	17.1	17.0	12.5	148	187	125
Wisconsin	66	73	72	18.4	19.0	16.0	1,279	1,387	1,152
Minnesota	1,189	1,182	1,383	13.6	13.4	9.7	15,438	15,839	13,415
Iowa	48	44	44	15.1	13.0	13.0	778	572	572
Missouri	11	6	3	13.7	12.5	13.0	148	75	39
North Dakota	6,224	7,772	7,461	11.0	10.7	6.8	66,947	83,160	50,735
South Dakota	1,989	2,803	981	10.4	13.5	4.0	20,820	37,840	3,924
Nebraska	186	202	414	13.6	10.0	8.0	2,932	2,020	3,312
Kansas	32	18	15	8.5	8.5	3.5	339	153	52
North Central	9,917	12,233	10,457	11.5	11.7	7.1	112,030	143,302	74,372
Montana	3,437	3,412	2,968	13.6	12.5	7.0	46,333	42,650	20,776
Idaho	610	540	540	24.2	29.0	21.0	15,644	15,660	11,340
Wyoming	200	129	133	12.8	12.0	10.0	2,668	1,548	1,330
Colorado	329	193	280	15.1	13.0	12.5	5,027	2,509	3,500
New Mexico	31	31	25	11.9	14.0	11.0	408	434	275
Utah	78	76	74	27.4	29.0	23.5	2,271	2,204	1,739
Nevada	12	17	15	25.1	26.0	22.0	286	442	330
Washington	1,128	1,089	1,579	15.0	12.5	21.0	17,416	13,612	33,159
Oregon	182	240	672	17.7	21.0	19.5	3,436	5,040	13,104
Western	6,007	5,727	6,286	15.5	14.7	13.6	93,490	84,099	85,553
United States	15,949	17,982	16,763	12.9	12.7	9.6	205,954	227,767	160,274

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 6.—*Wheat: Production, world and selected countries, 1890–91 to 1933–34*

Crop year	World production, excluding Russia and China	Northern Hemisphere production, excluding Russia and China	European production, excluding Russia	Selected countries: Russia [1]	United States	Canada	India	Argentina	Australia	France
	Million bushels	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*
1890–91	1,878	1,802	1,056	212	378	42	229	31	27	330
1891–92	1,989	1,904	900	173	585	42	257	36	26	215
1892–93	2,053	1,938	1,045	255	528	48	227	59	33	311
1893–94	2,076	1,936	1,097	375	428	41	286	82	37	278
1894–95	2,128	2,018	1,080	355	516	43	271	61	28	344
1895–96	2,126	2,039	1,057	310	569	41	261	46	18	340
1896–97	2,057	1,986	1,103	412	544	33	201	32	21	340
1897–98	1,893	1,790	842	340	610	47	200	53	28	242
1898–99	2,552	2,374	1,168	459	772	63	269	105	41	365
1899–1900	2,319	2,150	1,113	454	636	57	255	102	40	365
1900–1901	2,210	2,064	1,096	423	603	56	200	75	48	326
1901–2	2,472	2,357	1,103	428	789	85	265	56	39	311
1902–3	2,510	2,368	1,207	607	725	94	227	104	12	328
1903–4	2,651	2,412	1,266	621	664	78	298	130	74	363
1904–5	2,478	2,238	1,116	667	597	69	360	151	55	300
1905–6	2,673	2,441	1,223	636	727	106	283	135	69	335
1906–7	2,950	2,694	1,356	543	757	126	320	156	66	329
1907–8	2,619	2,344	1,176	571	638	93	317	192	45	381
1908–9	2,544	2,283	1,181	628	645	112	229	156	63	317
1909–10	2,819	2,554	1,240	846	700	167	285	131	90	359
1910–11	2,777	2,495	1,201	836	635	132	360	146	95	253
1911–12	3,043	2,758	1,347	563	621	231	376	166	72	322
1912–13	3,093	2,770	1,284	801	730	224	371	187	92	334
1913–14	3,098	2,853	1,301	1,028	763	232	368	105	103	319
1914–15	2,834	2,601	1,072	[2] 834	891	161	312	169	25	283
1915–16	3,497	3,102	1,125	[3] 827	1,026	394	377	169	179	223
1916–17	2,734	2,457	1,049	[4] 531	636	263	323	84	152	205
1917–18	2,574	2,178	740	622	637	234	382	235	115	[5] 135
1918–19	2,911	2,608	909	--------	921	189	370	180	76	229
1919–20	2,809	2,504	900	--------	952	193	280	217	46	187
1920–21	2,968	2,612	949	320	843	263	378	156	146	237
1921–22	3,179	2,797	1,224	205	819	301	250	191	129	323
1922–23	3,203	2,845	1,045	243	847	400	367	196	109	243
1923–24	3,519	3,087	1,257	419	759	474	372	248	125	276
1924–25	3,126	2,715	1,058	480	840	262	361	191	165	281
1925–26	3,380	3,013	1,397	785	669	395	331	191	115	330
1926–27	3,495	3,045	1,216	914	834	407	325	230	161	232
1927–28	3,671	3,198	1,274	797	875	480	335	282	118	276
1928–29	3,993	3,418	1,410	807	913	567	291	349	160	281
1929–30	3,570	3,203	1,450	694	822	305	321	163	127	337
1930–31	3,847	3,344	1,362	989	890	421	391	232	214	228
1931–32	3,822	3,348	1,435	786	932	321	347	220	191	264
1932–33	3,805	3,289	1,490	744	744	443	337	235	212	334
1933–34 [6]	3,613	3,124	1,699	1,019	527	270	353	256	160	339

[1] Includes all Russian territory reporting for years named.
[2] Total Russian Empire exclusive of the 10 Vistula Provinces of Russian Poland and the Province of Batum in Transcaucasia.
[3] Exclusive of Russian Poland, Lithuania, parts of present Latvia and Ukraine, and 2 Provinces of Transcaucasia.
[4] Beginning with this date estimated production is within present boundaries of the Union of Socialist Soviet Republics, excluding Turkestan, Transcaucasia, and the Far East, which regions in 1924 produced 51,706,000 bushels and, in 1925, 58,000,000 bushels.
[5] Beginning with this date production is within post-war boundaries and therefore not comparable with earlier years.
[6] Preliminary.

Bureau of Agricultural Economics.
Production figures refer to the year of harvest. Harvests of the Northern Hemisphere countries are combined with those of the Southern Hemisphere which immediately follow; thus, for 1933–34 the crop harvested in the Northern Hemisphere countries in 1933 is combined with the Southern Hemisphere harvest which begins late in 1933 and ends early in 1934.

TABLE 7.—*Wheat: Monthly marketings by farmers, as reported by about 3,500 mills and elevators, United States, 1923–24 to 1932–33*

Season	Percentage of receipts during—													
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Season
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
1923–24	1.1	13.8	17.5	15.7	13.0	9.2	6.4	4.7	5.1	3.6	3.0	4.0	2.9	100.0
1924–25	2.1	12.9	20.8	17.8	14.0	7.8	5.6	5.3	4.2	2.5	1.7	3.3	2.0	100.0
1925–26	2.3	14.0	18.2	18.2	11.2	9.0	7.2	4.8	4.1	3.0	3.0	2.9	2.1	100.0
1926–27	1.7	22.2	20.6	13.5	9.5	5.9	5.1	4.6	4.7	3.7	2.7	3.5	2.3	100.0
1927–28	2.7	15.0	18.0	19.8	12.6	7.8	5.3	4.5	4.0	3.8	2.5	2.7	1.3	100.0
1928–29	1.3	19.0	18.3	17.2	12.0	7.2	5.4	4.2	4.3	3.5	2.8	2.7	2.1	100.0
1929–30	5.1	25.5	22.3	14.0	8.6	4.8	4.5	3.1	2.9	2.5	2.5	2.6	1.6	100.0
1930–31	3.9	25.2	21.0	12.3	7.1	4.5	4.7	4.7	4.7	3.5	3.1	3.9	1.4	100.0
1931–32	3.1	20.2	24.3	11.3	7.7	5.8	4.2	4.2	4.4	5.0	3.4	3.7	2.7	100.0
1932–33	4.8	18.7	19.6	14.0	7.8	5.5	4.8	3.6	3.4	3.4	4.3	5.4	4.7	100.0

Bureau of Agricultural Economics.

TABLE 8.—*Wheat: United States, production, 1925–33; stocks on farms, quarterly, 1926–34*

Year	Production	Stocks on farms [1]	Year	Stocks on farms [1]		
		Oct. 1		Jan. 1	Apr. 1	July 1
	1,000 bushels	*1,000 bushels*		*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1925	669,142		1926		79,050	27,104
1926	833,544	370,310	1927	216,825	103,871	26,743
1927	874,733	378,871	1928	209,858	88,057	19,567
1928	912,961	449,013	1929	268,332	134,114	44,979
1929	822,180	344,009	1930	221,974	130,729	60,092
1930	889,702	400,026	1931	258,949	118,772	38,039
1931	932,221	498,383	1932	322,517	169,990	92,772
1932	744,076	415,066	1933	272,622	182,935	82,187
1933	527,413	309,651	1934	194,136	114,647	

[1] Revised data.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 9.—*Wheat: Production and farm disposition, United States, 1919–33*

Year	Production	Used for seed		Fed to livestock [1]	Ground at mills for home use or exchanged for flour [1]	Sold or for sale
		Total	Home grown [1]			
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1919	952,097	90,172	88,741	36,606	14,136	812,614
1920	843,277	88,408	86,888	20,611	11,725	724,053
1921	818,964	88,322	87,845	32,744	11,358	687,017
1922	846,649	84,432	82,747	49,357	11,140	703,405
1923	759,482	73,514	71,778	66,857	10,840	610,007
1924	840,091	80,951	80,072	55,855	10,553	693,611
1925	669,142	79,540	75,625	28,248	10,487	554,782
1926	833,544	85,065	82,971	34,383	10,344	705,846
1927	874,733	91,416	88,878	44,461	9,286	732,108
1928	912,961	84,577	82,421	55,113	8,196	767,231
1929	822,180	83,930	83,244	59,152	6,973	672,811
1930	889,702	81,060	80,318	157,517	10,538	641,329
1931	932,221	80,098	77,292	171,258	14,917	668,754
1932	744,076	82,922	81,776	122,529	15,724	524,047
1933 [2]	527,413	76,181	72,368	70,912	15,941	368,192

[1] Relates to quantities used by producers on their own farms. Additional quantities of purchased wheat are so utilized.
[2] Preliminary. Disposition items are approximations made in March 1934.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 10.—*Wheat: Acreage, yield per acre, and production in specified countries; average, 1921–22 to 1925–26, annual, 1930–31 to 1933–34*

Country	Acreage					Yield per acre					Production				
	Average, 1921–22 to 1925–26	1930–31	1931–32	1932–33	1933–34 [1]	Average, 1921–22 to 1925–26	1930–31	1931–32	1932–33	1933–34 [1]	Average, 1921–22 to 1925–26	1930–31	1931–32	1932–33	1933–34 [1]
NORTHERN HEMISPHERE															
North America:	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Canada	22, 083	24, 898	26, 201	27, 182	25, 991	16. 6	16. 9	12. 3	16. 3	10. 4	366, 483	420, 672	321, 325	443, 061	269, 729
United States	57, 557	62, 661	57, 103	57, 204	47, 493	13. 7	14. 2	16. 3	13. 0	11. 1	786, 866	889, 702	932, 221	744, 076	527, 413
Mexico	2, 098	1, 216	1, 501	1, 104	1, 179	5. 0	9. 4	10. 8	8. 7	10. 0	10, 388	11, 446	16, 226	9, 658	11, 753
Guatemala	24	23	16	-------	-------	9. 2	8. 1	8. 4	-------	-------	222	186	135	-------	-------
Europe:															
United Kingdom:															
England and Wales	1, 746	1, 346	1, 197	1, 288	1, 660	33. 7	29. 7	30. 0	32. 0	35. 4	58, 800	39, 960	35, 896	41, 253	58, 755
Scotland	57	54	50	52	78	39. 5	39. 4	35. 8	43. 1	44. 5	2, 251	2, 128	1, 792	2, 240	3, 472
Northern Ireland	6	5	3	3	6	30. 8	34. 2	35. 3	40. 3	37. 8	185	171	106	121	227
Irish Free State	34	27	21	21	50	33. 3	40. 4	37. 2	39. 6	-------	1, 131	1, 092	781	831	-------
Norway	27	30	29	28	28	23. 6	24. 0	20. 4	26. 8	27. 5	637	720	592	749	770
Sweden	352	647	683	746	799	30. 1	32. 2	24. 9	35. 5	34. 9	10, 602	20, 819	17, 033	26, 500	27, 851
Denmark	202	249	259	245	260	44. 4	41. 0	38. 8	44. 9	43. 8	8, 973	10, 216	10, 053	10, 997	11, 390
Netherlands	147	142	192	297	332	42. 6	42. 6	35. 2	43. 2	44. 8	6, 262	6, 056	6, 751	12, 837	14, 874
Belgium	339	411	381	386	366	38. 9	32. 2	36. 3	39. 8	37. 2	13, 194	13, 236	13, 817	15, 376	13, 617
Luxemburg	23	25	23	31	33	17. 0	17. 7	17. 7	23. 2	25. 6	392	442	406	719	846
France	13, 507	13, 279	12, 840	13, 428	13, 358	21. 5	17. 2	20. 6	24. 8	25. 4	290, 774	228, 105	264, 117	333, 524	338, 665
Spain	10, 457	11, 133	11, 245	11, 248	11, 047	13. 6	13. 2	12. 0	16. 4	11. 9	142, 420	146, 700	134, 427	184, 207	131, 937
Portugal	1, 078	1, 104	1, 271	1, 463	-------	10. 3	12. 3	10. 2	12. 4	-------	11, 103	13, 531	12, 999	18, 138	14, 825
Italy	11, 575	11, 917	11, 883	12, 185	12, 567	17. 1	17. 6	20. 6	22. 7	23. 7	198, 307	210, 071	244, 415	276, 922	297, 633
Switzerland	112	134	135	137	140	30. 9	26. 9	30. 0	29. 2	34. 3	3, 457	3, 605	4, 045	3, 998	4, 799
Germany	3, 613	4, 401	5, 355	5, 635	5, 727	27. 3	31. 6	29. 0	32. 6	36. 0	98, 714	139, 217	155, 546	183, 830	205, 920
Austria	471	508	517	536	547	18. 5	23. 6	21. 3	22. 8	31. 8	8, 703	12, 008	11, 009	12, 195	17, 391
Czechoslovakia	1, 526	1, 965	2, 047	2, 064	2, 271	23. 6	25. 8	20. 1	26. 0	32. 1	36, 015	50, 606	41, 232	53, 737	72, 895
Hungary	3, 345	4, 187	4, 011	3, 793	3, 936	17. 8	20. 1	18. 1	17. 0	22. 9	59, 678	84, 339	72, 550	64, 463	90, 146
Yugoslavia	3, 953	5, 246	5, 289	4, 820	5, 256	14. 9	15. 3	18. 7	11. 1	18. 4	58, 753	80, 326	98, 789	53, 444	96, 581
Greece	1, 075	1, 432	1, 496	1, 480	1, 732	8. 8	6. 8	7. 5	13. 7	16. 5	9, 417	9, 709	11, 228	20, 263	28, 580
Bulgaria	2, 390	3, 006	3, 053	3, 077	3, 051	13. 1	19. 1	20. 9	16. 4	19. 3	31, 399	57, 317	63, 831	50, 553	58, 858
Rumania	7, 068	7, 551	8, 566	7, 091	7, 701	12. 7	17. 3	15. 8	7. 8	15. 5	89, 570	130, 771	135, 300	55, 537	119, 085
Poland	2, 957	4, 066	4, 495	4, 265	4, 186	16. 5	20. 2	18. 5	11. 6	16. 3	48, 708	82, 321	83, 220	49, 472	68, 342
Lithuania	214	526	478	509	499	16. 6	21. 5	17. 4	18. 5	17. 5	3, 563	11, 327	8, 335	9, 423	8, 727
Latvia	89	179	215	255	309	16. 0	22. 7	15. 8	20. 8	21. 8	1, 426	4, 062	3, 388	5, 292	6, 725
Estonia	47	90	99	128	155	14. 2	18. 2	17. 6	16. 3	15. 0	667	1, 635	1, 738	2, 085	2, 324

Finland	36	35	47	59	65	20.5	24.7	23.9	25.1	24.6	739	866	1,121	1,483	1,598
Russia, European and Asiatic	43,137	80,490	92,066	85,497	--------	9.9	12.3	8.5	8.7	--------	426,437	989,161	786,000	744,052	1,018,893
Estimated European total, excluding Russia	66,400	73,700	75,900	75,300	77,400	--------	--------	--------	--------	--------	1,196,000	1,362,000	1,435,000	1,490,000	1,699,000
Africa:															
Morocco	2,272	2,957	2,537	2,713	3,026	9.6	7.2	11.7	10.3	8.9	21,758	21,302	29,783	27,970	27,006
Algeria	3,406	4,028	3,640	3,736	4,002	7.8	8.1	7.0	7.8	7.6	26,716	32,442	25,649	29,237	30,479
Tunis	1,400	1,903	1,977	2,392	1,754	5.6	5.5	7.1	7.3	5.2	7,892	10,398	13,963	17,453	9,186
Egypt	1,462	1,522	1,649	1,762	1,426	25.2	26.1	27.9	29.8	28.0	36.806	39,753	46,073	52,586	39,951
Asia:															
Turkey	[2] 7,058	6,101	8,773	8,555	6,419	[2] 5.6	15.0	11.7	8.3	12.6	[2] 39,510	91,322	102,426	71,135	80,835
India	29,561	31,654	32,189	33,803	32,992	11.4	12.3	10.8	10.0	10.7	336,276	390,843	347,424	336,896	352,875
Japanese Empire:															
Japan	1,197	1,204	1,228	1,247	1,509	22.5	24.5	25.2	25.1	25.6	26,899	29,537	30,892	31,336	38,595
Chosen	882	848	817	793	794	11.6	10.6	10.2	10.8	11.4	10,208	8,985	8,341	8,576	9,023
Taiwan	7	1	1	--------	--------	9.1	13.0	18.0	--------	--------	64	13	18	--------	--------
Kwantung	4	3	4	--------	--------	11.8	15.3	13.2	--------	--------	47	46	53	--------	--------
Estimated Asiatic total, excluding Russia and China	38,600	42,000	45,300	46,600	43,900	--------	--------	--------	--------	--------	437,000	555,000	527,000	471,000	508,000
Estimated Northern Hemisphere total, excluding Russia and China	195,500	215,100	215,900	218,100	206,300	--------	--------	--------	--------	--------	2,891,000	3,344,000	3,348,000	3,289,000	3,124,000
SOUTHERN HEMISPHERE															
Chile	1,446	1,610	1,517	1,500	--------	17.8	13.2	14.0	19.2	--------	25,761	21,190	21,187	28,743	--------
Uruguay	867	959	1,079	947	1,202	11.2	7.7	10.4	5.7	--------	9,680	7,369	11,259	5,407	--------
Argentina	16,159	19,527	16,028	17,789	[3] 19,662	12.6	11.9	13.7	13.2	[4] 13.0	203,388	232,285	219,696	235,378	256,175
Union of South Africa	868	1,266	1,736	1,556	1,401	8.6	7.3	7.9	6.8	6.7	7,459	9,297	13,713	10,627	9,370
Australia	10,010	18,165	14,741	15,347	14,500	12.8	11.8	12.9	13.8	11.0	128,520	213,594	190,612	212,398	160,000
New Zealand	224	249	269	303	294	29.6	30.4	24.5	36.5	--------	6,640	7,579	6,583	11,055	--------
Estimated Southern Hemisphere total	31,000	44,400	37,500	40,300	39,400	--------	--------	--------	--------	--------	390,000	503,000	474,000	516,000	489,000
Estimated world total, excluding Russia and China	226,500	259,500	253,400	258,400	245,600	--------	--------	--------	--------	--------	3,281,000	3,847,000	3,822,000	3,805,000	3,613,000

[1] Preliminary.
[2] Year 1925.
[3] Area sown.
[4] Computed on sown acreage.

Bureau of Agricultural Economics. Official sources and International Institute of Agriculture. Both acreage and production figures refer to the year of harvest. Harvests of the Northern Hemisphere countries are combined with those of the Southern Hemisphere which immediately follow; thus, for 1933–34 the crop harvested in the Northern Hemisphere countries in 1933 is combined with the Southern Hemisphere harvest which begins late in 1933 and ends early in 1934.

TABLE 11.—*Wheat: Receipts inspected, all inspection points, United States, by months, 1924–25 to 1933–34*

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1924–25	96, 019	154, 821	131, 036	135, 658	88, 206	51, 450	39, 525	37, 260	33, 370	19, 411	29, 458	33, 809	850, 023
1925–26	74, 414	79, 444	89, 240	51, 953	60, 289	55, 907	33, 716	31, 781	27, 681	26, 634	30, 733	46, 151	607, 943
1926–27	168, 040	142, 833	96, 534	72, 182	55, 067	44, 757	45, 154	47, 062	42, 770	37, 169	43, 077	46, 321	840, 966
1927–28	111, 097	127, 877	136, 744	112, 361	79, 464	53, 284	46, 724	43, 395	47, 274	33, 426	41, 124	26, 480	859, 250
1928–29	161, 267	139, 714	127, 237	130, 017	81, 352	68, 185	46, 115	53, 800	49, 912	34, 910	40, 499	56, 723	989, 731
1929–30	234, 335	171, 098	92, 048	64, 384	36, 369	45, 790	32, 973	40, 215	28, 723	25, 327	34, 265	62, 466	867, 993
1930–31	221, 083	153, 923	95, 619	54, 806	38, 532	44, 049	53, 826	52, 491	48, 072	37, 020	52, 869	62, 660	914, 950
1931–32	219, 167	114, 427	69, 868	64, 505	49, 838	33, 840	38, 989	55, 105	27, 238	28, 809	34, 642	37, 980	774, 408
1932–33	112, 764	85, 520	71, 789	46, 244	32, 003	28, 071	25, 477	19, 592	22, 970	30, 539	45, 232	66, 641	586, 842
1933–34	94, 212	52, 935	42, 772	30, 183	26, 925	24, 338	-------	-------	-------	-------	-------	-------	-------

Bureau of Agricultural Economics. Compiled from reports of licensed inspectors through district offices of Federal grain inspection. The quantity loaded per car varies, but car-lot receipts have been converted to bushels by using conversion factors for crop years as follows: 1924–25, 1,559; 1925–26, 1,368; 1926–27, 1,380; 1927–28, 1,399; 1928–29, 1,441; 1929–30, 1,455; 1930–31, 1,477; 1931–32, 1,485; 1932–33, 1,479; and 1933–34, 1,500 bushels per car respectively.

TABLE 12.—*Wheat: Receipts inspected, all inspection points, United States, by classes and grades, 1928–29 to 1932–33*

Class and year beginning July	Grade						Total
	No. 1	No. 2	No. 3	No. 4	No. 5	Sample	
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Hard red spring:							
1928–29	122, 597	40, 998	25, 009	9, 379	5, 127	45, 239	248, 349
1929–30	85, 142	27, 409	14, 971	3, 088	1, 097	6, 270	137, 977
1930–31	87, 418	29, 508	30, 859	10, 742	2, 893	1, 059	162, 479
1931–32	20, 809	10, 508	10, 428	3, 130	1, 579	603	47, 057
1932–33	61, 985	29, 349	29, 096	5, 496	1, 167	808	127, 901
Durum:							
1928–29	5, 817	37, 453	16, 242	10, 163	6, 072	6, 106	81, 853
1929–30	4, 858	22, 676	4, 707	2, 120	1, 409	985	36, 755
1930–31	8, 516	32, 562	4, 616	1, 663	579	349	48, 285
1931–32	1, 286	8, 503	1, 298	374	153	73	11, 687
1932–33	3, 235	11, 740	1, 534	413	180	86	17, 188
Hard red winter:							
1928–29	156, 343	186, 450	77, 083	31, 402	20, 965	18, 662	490, 905
1929–30	110, 932	226, 191	123, 928	38, 070	12, 865	14, 575	526, 561
1930–31	237, 604	193, 528	51, 537	22, 161	12, 027	7, 957	524, 814
1931–32	261, 155	229, 722	52, 195	12, 859	9, 942	7, 135	573, 008
1932–33	96, 125	145, 624	45, 710	13, 687	10, 437	6, 542	318, 125
Soft red winter:							
1928–29	9, 220	17, 576	8, 221	5, 459	1, 833	4, 396	46, 705
1929–30	5, 522	28, 879	22, 013	4, 596	1, 085	1, 913	64, 008
1930–31	40, 728	14, 358	2, 758	693	445	449	59, 431
1931–32	17, 870	38, 357	12, 994	3, 533	1, 414	1, 488	75, 656
1932–33	14, 385	26, 156	5, 648	1, 056	1, 275	1, 254	49, 774
White:							
1928–29	19, 301	21, 546	3, 094	721	252	357	45, 271
1929–30	14, 659	25, 502	4, 105	538	147	387	45, 338
1930–31	13, 391	29, 668	5, 819	645	148	235	49, 906
1931–32	13, 632	21, 273	5, 267	491	94	94	40, 851
1932–33	8, 192	17, 177	6, 877	1, 239	284	371	34, 140
Mixed:							
1928–29	15, 685	25, 869	14, 532	9, 306	6, 231	5, 025	76, 648
1929–30	12, 520	23, 153	12, 820	4, 381	2, 324	2, 156	57, 354
1930–31	25, 100	26, 800	9, 702	5, 206	2, 034	1, 193	70, 035
1931–32	9, 670	10, 042	4, 581	992	563	301	26, 149
1932–33	10, 613	19, 103	6, 337	1, 707	1, 229	725	39, 714
Total:							
1928–29	328, 963	329, 892	144, 181	66, 430	40, 480	79, 785	989, 731
1929–30	233, 633	353, 810	182, 544	52, 793	18, 927	26, 286	867, 993
1930–31	412, 757	326, 424	105, 291	41, 110	18, 126	11, 242	914, 950
1931–32	324, 422	318, 405	86, 763	21, 379	13, 745	9, 694	774, 408
1932–33	194, 535	249, 149	95, 202	23, 598	14, 572	9, 786	586, 842

Bureau of Agricultural Economics. Compiled from reports of licensed inspectors through district offices of Federal grain inspection. See 1927 Yearbook, p. 752, and 1928 Yearbook, p. 683, for data for earlier years. The quantity loaded per car varies, but car-lot receipts have been converted to bushels by using the following conversion factors: 1928–29, 1,441; 1929–30, 1,455; 1930–31, 1,477; 1931–32, 1,485; and 1932–33, 1,479 bushels per car respectively.

TABLE 13.—*Wheat: Commercial stocks, 1926–27 to 1933–34*

DOMESTIC WHEAT IN UNITED STATES [1]

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1926–27	-------	-------	-------	-------	-------	-------	66,340	56,303	56,262	49,910	37,667	27,833
1927–28	21,052	33,677	62,042	78,811	89,684	91,589	88,581	79,152	72,858	68,791	61,957	48,286
1928–29	38,587	52,421	93,870	115,469	139,493	140,172	144,351	129,646	126,377	124,756	113,392	96,059
1929–30	90,442	136,423	186,847	198,211	202,461	189,926	185,151	168,346	160,674	153,122	135,470	120,303
1930–31	109,327	161,897	201,319	223,826	211,381	206,618	199,649	202,694	208,651	214,242	206,490	209,110
1931–32	203,491	235,727	261,742	256,327	244,043	236,616	226,874	217,719	216,282	207,215	186,549	174,118
1932–33	168,405	175,918	188,342	194,858	191,829	176,428	168,465	158,031	148,242	135,552	124,395	117,536
1933–34	123,712	134,946	151,738	156,652	153,262	142,187	-------	-------	-------	-------	-------	-------

UNITED STATES WHEAT IN CANADA [2]

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1926–27	-------	-------	-------	-------	-------	-------	1,067	549	437	378	746	1,344
1927–28	1,362	1,280	4,249	4,560	7,258	5,156	3,933	2,285	1,680	977	863	2,314
1928–29	2,506	2,258	2,546	3,295	8,602	8,280	7,328	3,930	2,139	1,586	1,738	4,865
1929–30	3,332	2,288	4,450	8,770	9,065	9,101	8,546	7,517	6,613	5,860	5,431	4,359
1930–31	4,729	3,961	3,812	4,699	4,756	4,790	4,819	4,802	4,951	4,891	5,897	7,851
1931–32	14,657	22,934	32,236	32,511	31,627	29,414	29,153	28,652	27,682	27,578	26,872	17,481
1932–33	15,895	15,364	11,334	8,503	7,728	7,000	6,938	6,742	6,554	6,403	5,384	4,782
1933–34	4,047	3,740	3,672	3,114	2,656	2,251	-------	-------	-------	-------	-------	-------

CANADIAN WHEAT IN CANADA [3]

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1926–27	-------	-------	-------	-------	-------	-------	101,309	107,835	110,602	105,337	67,856	46,389
1927–28	40,399	36,524	24,876	28,909	61,831	91,808	122,678	133,741	140,855	131,334	121,195	97,363
1928–29	82,781	55,989	26,964	85,804	136,295	149,054	179,805	178,405	169,436	164,429	139,632	115,126
1929–30	94,939	84,414	81,348	145,739	188,009	187,784	190,649	184,834	178,689	170,688	157,912	128,020
1930–31	110,202	86,463	84,287	135,028	167,287	177,000	185,520	175,741	172,699	169,994	158,145	126,601
1931–32	110,323	105,193	96,449	114,866	152,863	169,088	172,125	173,593	171,191	172,281	159,982	142,049
1932–33	134,040	116,763	110,266	187,181	222,615	222,716	224,178	218,437	216,266	220,750	217,324	199,688
1933–34	195,001	190,428	191,185	220,467	241,163	234,490	-------	-------	-------	-------	-------	-------

CANADIAN WHEAT IN UNITED STATES [4]

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1926–27	-------	-------	-------	-------	-------	-------	23,394	14,500	9,532	6,650	10,724	16,749
1927–28	7,472	4,835	3,410	3,784	8,617	31,375	35,764	28,703	19,260	11,848	6,597	11,549
1928–29	11,132	13,605	3,789	7,548	18,291	33,902	46,717	38,327	32,851	23,854	28,772	25,538
1929–30	23,196	23,550	22,025	21,753	28,316	34,527	38,837	35,517	31,516	25,285	17,587	14,372
1930–31	16,435	16,468	12,603	17,304	22,112	30,297	32,266	26,954	18,085	13,990	2,766	5,926
1931–32	5,409	6,244	6,227	9,116	12,596	23,480	25,212	21,905	14,589	11,426	4,619	7,203
1932–33	4,532	4,707	5,581	10,988	13,917	15,197	13,575	11,142	8,690	5,992	2,497	4,609
1933–34	4,337	6,697	4,785	5,752	8,631	14,767	-------	-------	-------	-------	-------	-------

[1] Includes domestic wheat in store in public and private elevators in 41 markets and wheat afloat in vessels or barges in harbors of lake and seaboard ports. Does not include wheat in transit either by rail or water, stocks in mills, or mill elevators attached to mills, or private stocks of wheat intended for local use.

[2] Includes United States wheat in store at 15 Canadian points or afloat in vessels or barges in the harbors of lake and seaboard ports. Does not include wheat in transit to Canadian ports.

[3] Includes practically all Canadian wheat held within Canadian boundaries, exclusive of farm and certain mill stocks.

[4] Includes Canadian wheat in store and afloat at 10 United States lake and seaboard ports but not Canadian wheat in transit on lakes or canals.

Bureau of Agricultural Economics; compiled from weekly reports to the grain, hay, and feed market news service. Data are for stocks on the Saturday nearest the 1st day of the month.

TABLE 14.—*Wheat: United States production, 1928–29 to 1933–34, and exports by classes, 1923–24 to 1932–33*

ESTIMATED PRODUCTION

Year beginning July	Hard red spring	Durum	Hard red winter	Soft red winter	White [1]	Mixed [2]	Flour as wheat	Other wheat	Total
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1928–29	202, 128	97, 766	392, 155	128, 345	92, 567				912, 961
1929–30	144, 712	56, 307	370, 390	166, 430	84, 341				822, 180
1930–31	160, 594	59, 191	403, 363	178, 794	87, 760				889, 702
1931–32	70, 376	21, 266	515, 925	254, 480	70, 174				932, 221
1932–33	191, 444	41, 607	277, 450	149, 425	84, 150				744, 076
1933–34	103, 928	17, 443	169, 720	146, 879	89, 443				527, 413
INSPECTIONS FOR EXPORT AND OTHER EXPORTS OF DOMESTIC WHEAT AND FLOUR [3]									
1923–24	1, 022	4, 908	19, 640	9, 810	18, 653	5, 435	81, 087	19, 325	159, 880
1924–25	16, 760	5, 945	90, 840	6, 944	10, 063	9, 386	65, 313	55, 552	260, 803
1925–26	3, 338	4, 170	7, 358	2, 282	16, 914	5, 944	44, 846	23, 183	108, 035
1926–27	1, 829	611	66, 874	29, 980	26, 615	1, 398	62, 910	28, 943	219, 160
1927–28	5, 209	3, 496	41, 603	9, 915	28, 150	1, 874	60, 260	55, 752	206, 259
1928–29	1, 766	1, 045	30, 660	2, 782	14, 710	1, 473	60, 574	50, 677	163, 687
1929–30	1, 490	360	49, 290	2, 547	17, 527	751	61, 070	20, 210	153, 245
1930–31	462	712	44, 328	2, 495	13, 292	192	55, 259	14, 735	131, 475
1931–32	29	1, 432	72, 017	2, 125	13, 895	217	39, 276	6, 806	135, 797
1932–33	23	1, 391	16, 188	1	2, 022	40	20, 324	1, 222	41, 211

[1] White wheat in the Pacific Northwest region consists of both spring and winter wheat; no attempt has been made to classify this wheat as other than white wheat, part of which is spring and part winter.

[2] Mixed wheats exported from Atlantic coast ports are estimated as approximately 70 percent durum and the remainder as hard red spring; that exported from Gulf ports as approximately half and half hard and soft winter; and that exported from Pacific coast ports as approximately 90 percent white and the remainder as hard and soft red winter wheats.

[3] Designations by classes include all inspections for export. Flour as wheat is as reported by customs offices. "Other wheat" comprises total domestic exports as reported by customs offices minus "inspections for export" and consists principally of exports through Canada from customs districts of Buffalo, Chicago, Duluth-Superior, Ohio, and Wisconsin.

Bureau of Agricultural Economics.

Estimated production by classes based on questionnaire surveys of local authorities; supplemented by judgment of cereal specialists. Inspections of United States wheat for export data furnished monthly by Federal grain supervision officers at the export markets. Inspections are made at the ports of export. Export figures from reports of the Bureau of Foreign and Domestic Commerce.

TABLE 15.—*Wheat and wheat including flour in terms of grain: Exports from the United States, by months, 1923–24 to 1932–33*

WHEAT, GRAIN

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1923–24	8, 843	14, 198	15, 408	9, 239	4, 148	4, 950	4, 421	3, 095	2, 958	3, 747	2, 811	4, 975	78, 793
1924–25	4, 048	16, 835	32, 662	45, 128	27, 831	17, 791	8, 484	7, 387	9, 960	8, 424	9, 870	7, 070	195, 490
1925–26	5, 295	7, 901	9, 391	4, 354	4, 696	3, 695	2, 412	1, 700	3, 770	2, 533	9, 368	8, 074	63, 189
1926–27	16, 091	29, 075	23, 700	17, 589	14, 340	9, 622	8, 078	4, 889	5, 084	11, 363	8, 960	7, 459	156, 250
1927–28	8, 397	23, 418	33, 776	29, 236	20, 731	6, 917	5, 956	2, 276	2, 740	2, 723	4, 823	5, 006	145, 999
1928–29	4, 153	10, 374	17, 979	22, 058	10, 562	7, 641	3, 399	3, 214	3, 487	3, 942	11, 741	4, 564	103, 114
1929–30	8, 691	12, 094	13, 104	8, 767	9, 977	7, 149	8, 245	5, 185	2, 414	3, 050	5, 433	8, 066	92, 175
1930–31	11, 934	18, 646	12, 716	6, 105	3, 266	2, 713	1, 290	137	1, 397	3, 531	6, 494	8, 136	76, 365
1931–32	12, 731	8, 911	8, 397	11, 873	9, 519	7, 896	4, 072	4, 650	5, 749	9, 351	7, 284	6, 088	96, 527
1932–33 [1]	3, 208	3, 899	2, 479	2, 656	3, 714	1, 729	1, 793	729	456	194	14	16	20, 881
WHEAT, INCLUDING FLOUR IN TERMS OF GRAIN													
1923–24	12, 999	20, 183	22, 779	19, 071	12, 503	13, 358	12, 486	10, 326	9, 659	8, 624	7, 401	10, 491	159, 880
1924–25	7, 758	21, 295	39, 537	53, 834	35, 425	24, 616	13, 126	11, 784	16, 480	12, 912	13, 114	10, 922	260, 803
1925–26	8, 944	12, 007	13, 152	9, 113	8, 794	8, 437	5, 587	4, 742	7, 039	6, 452	12, 558	11, 210	108, 035
1926–27	19, 810	35, 479	31, 031	24, 098	20, 655	15, 301	12, 821	8, 997	9, 183	16, 138	14, 123	11, 515	219, 160
1927–28	12, 109	28, 361	39, 792	36, 347	27, 003	12, 197	11, 809	6, 725	7, 492	7, 410	8, 793	8, 230	206, 259
1928–29	7, 193	14, 754	22, 772	28, 567	16, 195	12, 053	9, 833	8, 948	9, 090	9, 151	16, 128	9, 003	163, 687
1929–30	13, 784	17, 338	18, 568	14, 922	15, 155	12, 428	14, 073	9, 535	7, 321	7, 438	10, 208	12, 475	153, 245
1930–31	16, 377	24, 413	19, 352	12, 355	8, 701	6, 906	5, 731	3, 717	4, 757	7, 107	10, 203	11, 856	131, 475
1931–32	17, 454	11, 919	11, 729	15, 563	13, 550	12, 100	8, 134	7, 995	8, 554	11, 882	8, 831	8, 086	135, 797
1932–33 [1]	4, 841	5, 613	4, 226	4, 422	5, 985	3, 549	3, 313	2, 175	2, 105	1, 754	1, 523	1, 705	41, 211

[1] Preliminary.

Bureau of Agricultural Economics; compiled from Monthly Summary of Foreign Commerce of the United States.

The following factor has been used for converting flour into terms of wheat: 1 barrel of flour = the product of 4.7 bushels of grain.

TABLE 16.—*Wheat, including flour: Supply, distribution, and disappearance in continental United States, 1919–20 to 1933–34*

Crop year beginning July	Supply									
	Stocks July 1									
	On farms [1]	In country elevators and mills [2]	Commercial stocks [3]	In merchant mills and elevators and stored for others [4]	In transit to merchant mills and bought to arrive [4]	Total wheat as grain	Flour in terms of wheat [5]	New crop [1]	Imports (flour included)[6]	Total supply
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1919–20	18,756	19,672	10,873			49,301	7,402	952,097	5,511	1,014,311
1920–21	48,677	37,304	23,404			109,385	10,502	843,277	57,682	1,020,846
1921–22	57,063	27,167	9,966			94,196	6,947	818,964	17,375	937,482
1922–23	32,519	28,756	20,342			81,617	7,793	846,649	20,031	956,090
1923–24	35,239	37,117	29,403			101,759	10,495	759,482	28,079	899,815
1924–25	29,349	36,626	38,597			104,572	9,616	840,091	6,201	960,480
1925–26	28,638	25,287	29,285	22,576	9,000	114,786	8,530	669,142	15,679	808,137
1926–27	27,104	29,501	16,486	24,505	7,350	104,946	9,757	833,544	13,264	961,511
1927–28	26,743	21,776	25,516	37,038	11,274	122,347	9,076	874,733	15,734	1,021,890
1928–29	19,567	19,277	42,208	31,920	10,893	123,865	9,019	912,961	21,442	1,067,287
1929–30	44,979	41,546	95,684	48,279	16,237	246,725	13,541	822,180	12,956	1,095,402
1930–31	60,092	60,166	109,327	59,170	14,706	303,461	20,497	889,702	19,059	1,232,719
1931–32	38,039	30,252	203,967	41,206	12,496	325,960	6,886	932,221	12,886	1,277,953
1932–33	92,772	41,585	168,405	71,714	10,088	384,564	7,041	744,076	9,382	1,145,063
1933–34	82,187	61,524	123,596	107,052	16,038	390,145	7,214	527,413		

Crop year beginning July	Distribution									
	Exports and shipments								Per capita disappearance	
	Exports (wheat only) [6]	Exports flour in terms of wheat [6]	Reexports and shipments (flour included)[6]	Total	Seed requirements [7]	Disappearance for food, feed, and loss	Carry-over (including flour) June 30 [8]	Population Jan. 1 [9]	Wheat for food, feed, and loss	Flour in terms wheat
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Thousands*	*Bushels*	*Bushels*
1919–20	122,431	99,599	3,130	225,160	90,172	579,092	119,887	105,711	5.48	4.68
1920–21	293,268	76,045	3,690	373,003	88,408	458,292	101,143	107,375	4.27	
1921–22	208,321	74,245	3,087	285,653	88,322	474,097	89,410	109,040	4.35	4.17
1922–23	154,951	69,949	3,117	228,017	84,432	531,387	112,254	110,705	4.80	
1923–24	78,793	81,087	3,064	162,944	73,514	549,169	114,188	112,370	4.89	4.26
1924–25	195,490	65,313	2,964	263,767	80,951	492,446	123,316	114,035	4.32	4.30
1925–26	63,189	44,846	3,054	111,089	79,540	502,805	114,703	115,700	4.40	4.31
1926–27	156,250	62,910	3,180	222,340	85,065	522,683	131,423	117,364	4.45	4.32
1927–28	145,999	60,260	2,743	209,002	91,416	588,588	132,884	119,029	4.94	4.26
1928–29	103,114	60,573	3,227	166,914	84,577	555,530	260,266	120,694	4.60	4.27
1929–30	92,175	61,070	3,049	156,294	83,930	543,720	311,458	122,359	4.44	4.16
1930–31	76,216	55,259	2,870	134,345	81,060	684,468	332,846	123,630	5.54	4.22
1931–32	96,521	39,276	3,661	139,458	80,098	666,792	391,605	124,511	5.36	4.05
1932–33	20,887	20,324	3,479	44,690	82,922	620,092	397,359	125,197	4.95	4.13

[1] Based on returns to the Bureau from crop reporters.
[2] Based on returns from about 3,500 country mills and elevators.
[3] From Bradstreets, 1919–20 to 1929–30; Bureau of Agricultural Economics, 1930–31 to end of table.
[4] Bureau of the Census, raised to represent all merchant mills. Stocks stored for others included, beginning July 1930.
[5] From Chicago Daily Trade Bulletin.
[6] From Reports of Foreign and Domestic Commerce of the United States; shipments are to Alaska, Hawaii, and Puerto Rico.
[7] Amount of seed used per acre from returns to the Bureau from inquiries sent to crop reporters.
[8] For individual items see supply section.
[9] Bureau of the Census.

Bureau of Agricultural Economics.

TABLE 17.—*Wheat, including flour in terms of grain: International trade, average 1925–26 to 1929–30, annual 1929–30 to 1932–33*

Country	Year beginning July									
	Average 1925–26 to 1929–30		1929–30		1930–31		1931–32		1932–33 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Canada	307, 640	796	184, 213	1, 392	267, 365	243	199, 563	232	267, 342	167
United States	170, 077	15, 815	153, 245	12, 956	131, 475	19, 059	135, 797	12, 886	41, 211	9, 382
Argentina	159, 377	[2] 10	161, 265	------	120, 638	------	144, 920	------	120, 272	------
Australia	83, 268	3	61, 776	3	143, 296	2	155, 451	1	148, 060	------
Hungary	23, 539	8	31, 415	3	18, 425	3	18, 064	1	7, 010	3
Russia	17, 731	0	7, 380	0	111, 780	253	71, 829	2, 093	19, 183	2, 726
Yugoslavia	10, 822	5	23, 593	3	5, 332	8	15, 369	------	1, 162	------
British India	10, 080	8, 636	6, 798	8, 646	10, 197	10, 618	[3] 2, 913	[3] 1, 201	[3] 871	[3] 1, 770
Rumania	6, 528	79	[4] 2, 560	[4] 66	16, 072	15	37, 481	12	[4] 186	[4] 20
Algeria	5, 162	[5] 2, 104	5, 358	1, 037	10, 125	2, 419	7, 039	2, 570	11, 505	------
Tunis	3, 518	669	6, 120	164	6, 286	909	8, 365	678	7, 672	576
Bulgaria	1, 869	[6] 1, 804	96	1, 804	5, 041	0	11, 795	0	3, 144	------
Chile	925	456	1, 063	54	1, 193	12	47	6	27	1, 560
Total	800, 536	30, 385	644, 882	26, 128	847, 225	33, 541	808, 633	19, 680	627, 645	16, 204
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	11, 369	215, 665	10, 795	212, 698	10, 064	230, 449	12, 294	257, 405	10, 138	227, 068
Germany	11, 527	85, 668	7, 203	67, 958	825	30, 853	12, 329	34, 290	25, 290	34, 049
Italy	2, 014	76, 212	3, 273	46, 700	2, 652	86, 231	4, 936	38, 421	8, 294	21, 462
France	4, 170	46, 574	18, 055	38, 471	22, 145	66, 929	12, 549	93, 311	9, 102	47, 056
Belgium	2, 452	43, 482	1, 953	44, 543	3, 102	48, 261	6, 733	54, 654	3, 847	44, 760
Brazil	0	32, 839	0	33, 889	0	30, 708	0	31, 595	0	30, 473
Netherlands	943	30, 050	856	30, 992	1, 428	36, 830	366	31, 431	900	27, 351
China [7]	1, 862	23, 486	1, 865	49, 123	59	22, 020	93	65, 575	2, 583	53, 838
Japan	5, 989	23, 158	5, 403	19, 156	7, 953	25, 343	7, 592	29, 977	15, 093	18, 832
Greece	0	20, 055	0	21, 521	0	24, 081	0	23, 941	0	19, 517
Czechoslovakia	418	18, 604	1, 694	13, 980	4, 007	17, 063	3, 365	23, 860	4, 162	11, 307
Irish Free State	[5] 74	18, 502	------	17, 915	------	19, 007	------	19, 902	------	18, 419
Switzerland	0	16, 461	1	16, 915	4	18, 393	27	21, 129	28	19, 313
Austria	116	16, 275	132	18, 530	267	17, 030	114	14, 194	41	13, 414
Egypt	162	10, 448	108	11, 202	24	9, 699	3	7, 671	21	631
Denmark	524	10, 102	310	8, 080	130	11, 540	48	17, 392	62	12, 151
Sweden	2, 004	9, 092	2, 147	9, 309	76	5, 483	14	6, 606	23	3, 640
Norway	------	6, 964	------	7, 130	------	8, 275	------	8, 887	------	8, 234
Union of South Africa	253	6, 317	326	5, 036	173	3, 631	291	2, 096	154	353
Cuba	0	5, 647	0	5, 498	0	4, 560	0	4, 064	0	------
Finland	0	5, 390	0	5, 623	0	4, 878	0	4, 197	0	4, 153
Spain	526	5, 189	188	4, 959	169	13	55	2, 539	20	8, 264
Poland	1, 407	4, 820	790	602	4, 286	286	3, 762	585	2, 092	811
Dutch East Indies [7]	0	3, 328	0	3, 810	0	4, 016	1	4, 032	[8] 0	[8] 2, 349
Syria and Lebanon [4]	[2] 14	2, 710	22	1, 304	290	458	1, 050	1, 364	694	2, 268
Latvia [4]	17	2, 027	86	2, 524	176	1, 966	0	790	4	283
New Zealand	45	1, 658	217	719	1	752	1	701	706	2, 124
Indo-China	[4] 0	[4] 1, 177	0	1, 186	0	988	0	893	0	770
Estonia	0	1, 062	0	1, 218	0	880	0	520	0	3
Total	45, 886	742, 962	55, 424	700, 591	57, 831	730, 623	65, 623	802, 022	83, 254	632, 893

[1] Preliminary.
[2] 3-year average.
[3] Sea trade only after Sept. 30, 1931.
[4] Monthly Crop Report and Agricultural Statistics.
[5] 4-year average.
[6] 1 year only.
[7] Calendar year.
[8] Java and Madura only.

Bureau of Agricultural Economics; official sources except where otherwise noted.

TABLE 18.—*Wheat: Weighted average price*[1] *per bushel of reported cash sales at Minneapolis, St. Louis, Kansas City, and 6 markets combined 1924–25 to 1933–34*

Grade, market, and year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Weighted average
No. 1 Northern Spring, Minneapolis:	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	137	131	130	146	148	166	189	187	171	150	167	164	156
1925–26	159	164	150	149	155	169	173	167	161	164	162	163	161
1926–27	172	149	143	149	146	146	143	142	139	138	147	149	146
1927–28	147	143	134	129	130	132	135	134	139	153	157	148	136
1928–29	138	119	119	116	116	115	121	128	125	120	111	115	118
1929–30	143	135	135	131	128	131	127	125	112	111	107	100	133
1930–31	92	91	87	82	75	77	76	75	76	79	81	74	83
1931–32	61	65	69	71	80	73	75	75	70	71	68	60	68
1332–33	57	58	58	54	49	48	50	49	53	63	74	80	60
1933–34	108	94	90	85	86	83	------	------	------	------	------	------	--------
No. 2 Red Winter, St. Louis:													
1924–25	135	138	140	156	163	179	210	202	186	177	186	189	159
1925–26	159	172	171	170	171	184	194	185	170	171	162	147	169
1926–27	142	134	136	140	136	137	138	135	130	129	142	150	138
1927–28	141	142	142	145	141	144	151	156	169	196	196	179	149
1928–29	147	138	145	144	145	139	142	140	135	125	117	121	139
1929–30	139	132	135	132	129	135	134	123	118	117	114	105	130
1930–31	85	89	88	87	83	83	78	79	78	80	79	72	83
1931–32	48	47	47	52	62	57	57	57	55	57	56	49	52
1932–33	47	53	54	50	47	46	50	49	55	69	81	82	55
1933–34	101	92	89	86	90	87	------	------	------	------	------	------	--------
No. 2 Amber Durum, Minneapolis:													
1924–25	127	129	129	161	164	176	215	210	202	176	180	162	156
1925–26	164	150	130	129	143	156	157	151	144	149	147	150	144
1926–27	154	153	138	150	161	174	168	160	157	154	158	157	155
1927–28	153	140	128	123	128	133	130	129	133	141	140	131	132
1928–29	123	108	106	112	114	110	127	129	124	118	108	115	113
1929–30	135	127	128	125	119	123	119	111	97	99	97	88	119
1930–31	87	86	79	78	70	74	72	73	72	73	77	64	78
1931–32	61	73	73	79	87	84	87	86	78	72	67	56	76
1932–33	54	57	53	51	50	50	52	51	57	68	74	73	58
1933–34	108	102	100	97	100	97	------	------	------	------	------	------	--------
No. 2 Hard Winter, Kansas City:													
1924–25	120	119	120	137	143	162	182	181	171	151	163	160	135
1925–26	154	164	158	158	163	172	178	171	161	159	155	153	163
1926–27	137	131	132	139	137	138	137	135	133	131	142	144	135
1927–28	136	135	131	128	131	132	133	133	138	152	160	147	135
1928–29	120	106	107	110	112	111	114	118	116	110	101	105	112
1929–30	125	123	124	122	119	121	119	113	102	101	99	89	120
1930–31	80	81	78	74	69	71	69	69	70	73	73	68	76
1931–32	44	43	43	48	59	52	53	54	51	53	54	46	47
1932–33	45	48	48	45	43	42	44	44	48	60	70	76	51
1933–34	98	90	87	83	84	80	------	------	------	------	------	------	--------
6 markets, all classes and grades:[2]													
1924–25	125.7	123.5	128.3	144.8	148.2	163.6	188.8	184.8	172.1	150.8	165.5	161.6	145.3
1925–26	155.7	160.5	144.8	143.3	153.5	165.7	170.3	164.8	154.9	156.0	153.8	151.6	155.0
1926–27	141.6	135.3	135.6	139.4	137.7	139.5	138.8	136.2	133.6	134.7	145.1	148.6	138.3
1927–28	138.7	136.4	128.7	125.1	125.6	128.0	131.0	132.0	136.6	150.7	151.4	141.8	132.9
1928–29	126.0	109.4	108.9	107.0	109.1	107.4	113.7	118.1	114.2	109.2	101.1	105.3	110.6
1929–30	129.8	125.7	127.4	123.7	121.2	123.5	121.6	115.8	103.9	102.5	100.9	94.1	121.9
1930–31	82.6	84.7	79.0	76.0	69.8	72.5	71.4	70.9	71.4	74.5	75.5	66.8	77.1
1931–32	46.5	50.6	55.7	58.4	68.7	60.0	61.3	59.0	57.8	60.1	60.8	52.8	55.1
1932–33	47.6	55.1	55.1	51.2	48.8	46.1	48.4	47.9	53.1	64.4	73.4	77.7	57.0
1933–34	100.3	92.3	89.1	84.3	86.7	83.0	------	------	------	------	------	------	--------

1 Average of daily prices weighted by car-lot sales.
2 Compiled from daily trade papers of markets named. The markets are Chicago, Minneapolis, Kansas City, St. Louis, Omaha, and Duluth. The prices in this section of the table are comparable with prices paid to producers in that the latter are averages of the several prices reported which cover all classes and grades sold by producers.

Bureau of Agricultural Economics; compiled from Minneapolis Daily Market Record, St. Louis Daily Market Reporter, and Kansas City Grain Market Review.

TABLE 19.—*Wheat: Average price per bushel received by producers, United States, 1924–25 to 1933–34*

Year	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	105.8	116.8	114.2	129.7	133.6	141.1	162.1	169.8	164.0	140.5	149.1	152.7	126.6
1925–26	140.3	150.4	144.4	136.4	148.8	153.7	158.1	155.5	146.0	142.2	142.1	138.9	146.2
1926–27	127.7	125.1	117.7	121.4	123.6	122.8	122.2	122.8	120.9	117.2	123.2	130.1	123.8
1927–28	127.3	123.5	119.2	113.7	111.4	113.9	115.2	116.2	121.6	129.2	144.3	132.0	120.8
1928–29	118.1	95.2	94.4	98.7	97.1	98.2	98.5	104.2	104.7	99.8	90.1	86.8	101.2
1929–30	102.4	110.7	112.1	111.5	103.4	108.1	107.5	101.3	91.9	93.4	87.5	87.9	104.9
1930–31	70.6	74.0	70.3	65.6	60.0	61.3	59.1	58.7	58.3	59.2	59.9	51.9	68.1
1931–32	36.3	35.4	35.7	36.1	50.5	44.1	44.1	44.0	44.2	43.1	42.4	37.3	39.1
1932–33	35.6	38.5	37.4	34.6	32.8	31.6	32.9	32.3	34.5	44.8	59.0	58.7	38.6
1933–34	86.9	74.7	71.1	63.6	71.1	67.3	------	------	------	------	------	------	---------

Bureau of Agricultural Economics; based on returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; yearly price obtained by weighting monthly prices by monthly marketings.

TABLE 20.—*Wheat: Average price per bushel of specified grades at markets named, 1900–1901 to 1932–33*

Crop year beginning July	No. 1 Northern Spring at Minneapolis	No. 2 Amber Durum at Minneapolis	No. 2 Hard Winter at Chicago	No. 2 Hard Winter at Kansas City	No. 2 Red Winter at St. Louis	No. 2 Hard Winter at New York [1]	Imported red at Liverpool [2]
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1900–1901	75	----------	72	67	74	84	87
1901–2	72	----------	71	68	72	82	87
1902–3	74	----------	73	68	71	85	89
1903–4	89	69	81	77	87	98	90
1904–5	113	92	101	97	103	120	[3] 95
1905–6	84	70	86	80	90	96	[4] 98
1906–7	83	64	76	72	76	92	93
1907–8	107	85	96	93	94	116	110
1908–9	111	95	100	99	104	122	120
1909–10	109	90	109	107	113	120	120
1910–11	105	87	100	98	99	104	107
1911–12	107	98	94	97	94	110	112
1912–13	87	85	94	88	105	103	114
1913–14	88	83	89	84	89	99	106
1914–15	120	122	111	105	110	136	157
1915–16	109	104	114	119	120	128	175
1916–17	176	180	157	71	163	208	224
1917–18	220	218	228	252	223	240	235
1918–19	225	222	234	219	223	237	240
1919–20	272	249	227	242	230	255	215
1920–21	207	200	216	183	213	210	223
1921–22	143	119	128	120	127	135	151
1922–23	120	107	113	113	121	131	144
1923–24	117	106	106	105	107	121	[5] 127
1924–25	156	156	139	135	159	170	181
1925–26	161	144	161	163	169	180	176
1926–27	146	155	140	135	138	156	163
1927–28	136	132	138	135	149	153	152
1928–29	118	113	117	112	139	131	128
1929–30	133	119	130	120	130	126	129
1930–31	83	78	84	76	83	[3] 92	80
1931–32	68	76	53	47	52	68	59
1932–33	60	58	53	51	55	69	54

[1] 1900–1901 to 1908–9, averages of monthly high and low, from Annual Statistical Report, New York Produce Exchange, of No. 1 Northern Spring; 1909–10 to 1932–33, averages of daily cash closing prices, from New York Journal of Commerce.
[2] Compiled from Broomhall's Yearbooks and Corn Trade News. 1900–1901 to 1925–26, imported red; 1926–27 to 1932–33, average of all parcels at Liverpool.
[3] Average for 6 months.
[4] Average for 10 months.
[5] Average for 11 months.

Bureau of Agricultural Economics.
The prices at Chicago, Minneapolis, Kansas City, and St. Louis are weighted averages. New York and Liverpool are simple averages. The weighted average prices are compiled from daily trade papers of markets named.

TABLE 21.—*Wheat, No. 3 Manitoba Northern: Average cash price per bushel at Winnipeg, in terms of United States money, 1924–25 to 1933–34* [1]

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	126	134	136	150	153	161	184	187	167	149	174	162	157
1925–26	153	160	132	120	136	149	146	144	138	146	144	144	143
1926–27	149	138	133	136	131	123	123	127	130	133	146	149	135
1927–28	153	145	131	127	124	124	123	124	131	141	142	130	133
1928–29	120	108	106	111	111	109	112	120	119	115	107	112	113
1929–30	152	152	144	134	126	130	123	110	100	103	104	98	123
1930–31	90	88	74	68	60	48	47	53	50	54	53	53	62
1931–32	49	46	43	45	52	43	44	48	49	50	49	43	47
1932–33	43	46	43	41	38	32	35	35	38	43	53	57	42
1933–34	75	65	61	54	60	55							

[1] Average of daily cash closing prices; basis, in store at Fort William and Port Arthur.

Bureau of Agricultural Economics.
Compiled as follows: July 1924–July 1928, Reports on the Grain Trade of Canada; August 1928 to latest date shown, Minneapolis Daily Market Record. Conversions at current rate of exchange July 1924–March 1925, and September 1931 to end of table; par rate used April 1925–August 1931. Rates are monthly averages as reported by the Federal Reserve Board.

TABLE 22.—*Wheat: Average spot price per bushel of parcels of imported wheat at Liverpool, 1924–25 to 1933–34*

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	141	152	155	174	176	183	200	205	192	170	184	181	176
1925–26	168	172	159	148	164	185	181	175	161	171	173	169	169
1926–27	167	162	160	171	171	163	160	157	156	156	165	165	163
1927–28	161	160	151	149	147	148	149	146	151	159	155	147	152
1928–29	141	126	126	129	129	126	131	135	131	125	116	117	128
1929–30	141	142	137	136	125	141	140	124	119	120	114	110	129
1930–31	106	105	92	86	81	74	68	70	67	71	72	67	80
1931–32	62	53	53	59	64	57	55	60	63	64	61	55	59
1932–33	54	57	59	55	52	49	50	47	48	52	61	63	54
1933–34	79	67	73	55	68	65	69	66					

Bureau of Agricultural Economics. Parcels are less than cargo lots. Prices are per bushel of 60 pounds. Compiled from Broomhall's Corn Trade News. These are simple averages of daily sales prices of parcels at Liverpool. Conversions at par from January 1926 to August 1931, inclusive. Prior to January 1926, and beginning with September 1931, conversions were made at monthly average of current rates of exchange given in Federal Reserve Bulletins.

TABLE 23.—*Flour, spring wheat, family patent: Average wholesale price per barrel,*[1] *Minneapolis, 1924–25 to 1933–34*

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924–25	7.72	7.69	7.52	8.19	8.22	9.03	9.80	10.02	9.34	8.54	9.12	8.86	8.67
1925–26	8.78	9.04	8.52	8.52	8.81	9.52	9.85	9.46	9.19	9.20	9.00	9.32	9.10
1926–27	9.27	8.50	7.87	8.08	7.85	8.02	7.95	7.85	7.74	7.75	8.23	8.39	8.12
1927–28	8.26	7.98	7.52	7.43	7.38	7.37	7.48	7.47	7.88	8.48	8.68	8.12	7.84
1928–29	7.63	6.94	6.87	6.76	6.68	6.68	7.00	7.40	7.23	7.07	6.60	6.68	6.96
1929–30	8.38	7.96	7.79	7.38	7.29	7.54	7.29	6.91	6.71	6.67	6.43	6.31	7.22
1930–31	6.01	5.92	5.54	5.42	5.24	5.34	5.37	5.22	5.07	4.94	5.17	5.08	5.36
1931–32	4.56	4.50	4.44	4.52	5.01	4.75	4.50	4.42	4.31	4.62	4.71	4.38	4.56
1932–33	4.24	4.43	4.44	4.19	4.02	4.07	4.11	4.10	4.32	4.92	5.41	5.77	4.50
1933–34	8.03	7.57	7.54	7.21	7.28	7.06							

[1] Packed in 98-pound cotton sacks, 1924–25 to 1931–32; sold in bulk, 1932–33 to date; basis all quotations carload lots.

Bureau of Agricultural Economics; compiled from the Minneapolis Daily Market Record.
Prices 1909–10 to 1923–24 appear in 1930 Yearbook, table 25.

TABLE 24.—*Bread: Average retail price per pound (baked weight) in leading cities of the United States, 1924–25 to 1933–34*

Year	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	8.7	8.8	8.8	8.8	8.9	8.9	9.2	9.5	9.4	9.4	9.4	9.4	9.1
1925–26	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
1926–27	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.3	9.4
1927–28	9.3	9.3	9.3	9.3	9.3	9.2	9.2	9.2	9.1	9.1	9.1	9.2	9.2
1928–29	9.2	9.2	9.1	9.1	9.1	9.0	9.0	9.0	9.0	9.0	9.0	9.2	9.1
1929–30	9.0	9.0	9.0	8.9	8.9	8.9	8.9	8.8	8.8	8.8	8.8	8.8	8.9
1930–31	8.8	8.7	8.7	8.6	8.5	8.5	8.2	8.0	7.9	7.7	7.7	7.6	8.2
1931–32	7.5	7.4	7.3	7.3	7.3	7.2	7.1	7.0	7.0	6.9	6.9	6.9	7.2
1932–33	6.8	6.8	6.7	6.7	6.7	6.6	6.4	6.4	6.4	6.4	6.5	6.6	6.6
1933–34 [1]	7.2	7.6	7.7	8.0	8.0								

[1] Beginning August 1933, price is for Tuesday nearest the 15th of month.

Bureau of Agricultural Economics; compiled from Bureau of Labor Statistics retail prices, monthly. Data for 1913–14 to 1923–24 are available in the 1930 Yearbook, p. 615, table 26.

TABLE 25.—*Bran, standard: Average price per ton, Minneapolis, 1924–25 to 1933–34* [1]

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924–25	22.77	23.43	23.00	24.66	25.62	30.43	30.14	24.49	23.45	23.46	26.84	26.34	25.34
1925–26	23.58	24.20	23.09	22.83	25.73	26.34	26.17	23.68	22.24	25.05	23.30	21.31	23.96
1926–27	22.02	21.69	21.64	21.33	23.14	26.02	26.48	27.64	26.96	27.31	28.43	26.51	24.93
1927–28	25.13	26.85	25.88	25.96	28.41	30.09	30.66	32.47	35.68	34.28	35.03	29.68	30.01
1928–29	27.29	24.12	25.49	28.09	30.82	31.69	30.54	28.64	26.88	22.93	22.38	22.56	26.79
1929–30	26.17	26.44	29.19	28.21	27.90	27.66	26.58	24.45	23.17	27.43	25.06	21.25	26.13
1930–31	19.33	24.17	21.43	19.91	17.97	16.57	15.61	14.66	17.87	19.02	14.15	11.38	17.67
1931–32	10.30	10.55	10.02	9.93	14.17	13.04	12.99	11.65	13.35	13.63	10.74	9.45	11.65
1932–33	8.56	8.58	8.44	7.93	8.33	8.15	8.27	9.35	10.82	11.82	12.17	11.56	9.50
1933–34	18.18	17.31	14.36	13.41	13.71	12.89							

[1] Quoted as follows: Prior to Sept. 3, 1921, quoted as "car lots per ton, in 100-pound sacks"; Sept. 3, 1921–May 31, 1930, no container nor lots designated; June 2–Oct. 31, 1930, "based on car lots per ton"; beginning Nov. 1, 1930, "car lots, f.o.b. Minneapolis, prompt shipment."

Bureau of Agricultural Economics; compiled from the Minneapolis Daily Market Record. Prices are simple averages of daily quotations.

TABLE 26.—*Middlings, standard: Average price per ton, Minneapolis, 1924–25 to 1933–34* [1]

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924–25	24.46	25.68	25.27	26.64	27.99	31.44	33.08	26.09	23.62	24.28	29.07	29.68	27.28
1925–26	25.53	26.95	26.37	24.19	26.31	25.28	26.10	23.71	22.03	24.20	21.77	21.60	24.50
1926–27	22.96	23.01	22.67	22.31	24.16	27.38	27.35	28.61	28.46	27.79	29.13	29.10	26.08
1927–28	31.42	34.46	29.22	26.88	28.72	30.00	30.52	32.71	35.85	34.33	37.14	35.30	32.21
1928–29	32.18	24.31	27.44	28.61	31.01	31.21	30.46	28.31	26.28	22.76	21.98	22.64	27.27
1929–30	28.42	29.25	32.66	32.08	28.76	28.00	26.46	24.11	22.71	26.74	25.21	22.09	27.21
1930–31	20.64	25.10	22.17	19.55	17.49	16.00	14.85	13.52	17.36	18.52	13.85	11.95	17.58
1931–32	11.06	10.35	10.35	10.02	14.40	13.03	12.12	11.01	12.42	13.52	10.72	9.13	11.51
1932–33	9.57	9.52	8.50	8.08	8.37	7.62	8.10	8.78	10.28	11.34	12.61	12.40	9.60
1933–34	19.91	19.59	15.58	14.67	14.94	13.10							

[1] Quoted as follows: Prior to Sept. 3, 1921, quoted as "car lots per ton, in 100-pound sacks"; Sept. 3, 1921–May 31, 1930, no container nor lots designated; June 2–Oct. 31, 1930, "based on car lots per ton"; beginning Nov. 1, 1930, "car lots, f.o.b. Minneapolis, prompt shipment."

Bureau of Agricultural Economics; compiled from the Minneapolis Daily Market Record. Prices are simple averages of daily quotations.

TABLE 27.—*Wheat: Volume of trading in futures at all contract markets, by months, 1924–25 to 1933–34*

Month	1924–25	1925–26	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34
	Million bushels	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*
July	1, 333	1, 460	1, 438	1, 018	996	2, 889	1, 306	677	592	2, 000
August	1, 300	1, 561	1, 226	1, 144	1, 133	2, 265	1, 531	647	1, 214	820
September	1, 068	1, 475	1, 156	923	818	1, 401	1, 216	519	831	802
October	1, 596	1, 573	1, 090	918	916	1, 738	1, 160	925	714	989
November	1, 340	1, 500	1, 227	838	750	1, 805	1, 094	1, 479	725	917
December	1, 528	2, 349	972	543	517	1, 608	529	864	488	529
January	1, 908	1, 456	704	384	1, 085	1, 334	347	654	518	--------
February	1, 781	1, 284	581	508	892	1, 484	369	770	365	--------
March	2, 273	1, 864	920	923	1, 083	1, 201	433	859	551	--------
April	1, 482	1, 397	846	1, 590	1, 361	1, 501	706	1, 127	1, 548	--------
May	1, 508	1, 222	1, 260	1, 471	1, 253	1, 004	635	787	1, 483	--------
June	1, 759	1, 204	1, 164	941	1, 391	1, 377	737	840	1, 864	--------
Total	18, 876	18, 345	12, 584	11, 201	12, 195	19, 607	10, 063	10, 147	10, 890	--------

Grain Futures Administration.

TABLE 28.—*Wheat: Volume of trading in futures at contract markets, by markets and by crop years, 1924–25 to 1932–33, and monthly for 1933*

Year and month	Chicago Board of Trade	Chicago Open Board	Minneapolis	Kansas City	Duluth	St. Louis	Milwaukee	Seattle	Portland	New York	Omaha [1]	Hutchinson
	Million bushels	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*
1924–25	16, 587	446	928	577	190	126. 0	22. 0	-------	-------	-------	-------	--------
1925–26	15, 869	602	973	546	234	96. 6	24. 0	0. 6	-------	-------	-------	--------
1926–27	10, 620	429	632	502	155	69. 5	20. 7	6. 9	-------	148. 8	-------	--------
1927–28	9, 203	342	824	441	272	53. 2	27. 6	7. 4	-------	29. 1	-------	--------
1928–29	9, 908	387	887	576	377	27. 6	25. 0	7. 9	0. 4	-------	-------	--------
1929–30	16, 599	466	1, 248	875	328	22. 2	39. 3	14. 4	15. 0	-------	(2)	--------
1930–31	8, 360	297	581	515	220	8. 8	15. 3	12. 2	12. 8	25. 4	15. 3	--------
1931–32	8, 566	334	364	773	67	15. 2	17. 6	5. 4	2. 9	1. 0	. 1	[3] 1. 3
1932–33	9, 093	267	589	799	102	10. 8	19. 4	5. 4	3. 1	-------	-------	1. 4
1933												
January	433	19	29	29	6	. 6	. 7	. 2	(2)	-------	-------	(2)
February	288	13	23	37	2	. 3	. 6	. 1	(2)	-------	-------	(2)
March	456	15	28	45	4	. 5	1. 0	. 1	. 1	-------	-------	(2)
April	1, 310	31	80	111	10	1. 8	3. 2	. 6	. 7	-------	-------	. 1
May	1, 277	32	64	96	10	1. 6	3. 1	. 7	. 6	-------	-------	(2)
June	1, 572	34	93	142	14	1. 4	4. 2	1. 0	. 5	-------	-------	. 1
July	1, 685	32	97	165	15	. 9	4. 3	. 9	. 7	-------	-------	(2)
August	647	22	71	67	10	. 5	1. 2	. 6	. 5	-------	-------	(2)
September	662	26	56	47	9	. 6	1. 3	. 5	. 2	-------	-------	(2)
October	833	26	55	65	7	. 8	1. 6	. 3	. 2	-------	-------	(2)
November	743	23	63	75	8	1. 5	1. 5	1. 4	. 8	-------	-------	(2)
December	448	18	28	30	4	. 3	1. 0	. 3	. 1	-------	-------	(2)

[1] Trading on Omaha Grain Exchange started June 16, 1930 and was suspended Dec. 7, 1932.
[2] Less than 50,000 bushels.
[3] Trading on Hutchinson Board of Trade Association began May 16, 1932.

Grain Futures Administration.

TABLE 29.—*Wheat: Amount of open commitments in the various futures, Chicago Board of Trade, semimonthly, Jan. 16–Dec. 30, 1933*

Date	May	July	September	December	All futures	Date	May	July	September	December	All futures
1933	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	1933	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*
Jan. 16	96	34	4	--------	134	July 15	19	2	95	74	191
31	93	35	6	--------	133	31	31	--------	63	74	167
Feb. 15	85	37	10	--------	132	Aug. 15	37	--------	42	83	163
28	77	40	13	--------	129	31	51	--------	6	94	150
Mar. 16	70	40	14	--------	125	Sept. 15	59	--------	--------	92	151
31	55	47	26	--------	127	30	71	--------	--------	87	158
Apr. 15	30	59	47	--------	136	Oct. 16	73	3	--------	76	152
29	10	64	73	2	148	31	74	8	--------	56	137
May 15	2	60	79	9	150	Nov. 15	93	9	--------	40	142
31	--------	45	87	19	151	29	111	17	--------	9	138
June 15	--------	25	104	31	160	Dec. 15	115	21	--------	2	138
30	5	5	96	59	164	30	109	25	--------	--------	133

Grain Futures Administration.

TABLE 30.—*Rye: Acreage, production, value, foreign trade, etc., United States, 1909–33*

Year	Acreage harvested	Average yield per acre	Production	Price per bushel received by producers Dec. 1 [1]	Farm value, basis Dec. 1 price	Price per bushel of No. 2 rye at Minneapolis year beginning July [2]	Foreign trade, including flour, year beginning July [3]			
							Domestic exports	Imports	Net exports [4]	
									Total	Percentage of production
	1,000 acres	*Bushels*	*1,000 bushels*	*Cents*	*1,000 dollars*	*Cents*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Percent*
1909	*2,196*	*13.4*	*29,520*	--------	--------	--------	--------	--------	--------	--------
1909	2,196	16.1	35,406	72.2	25,548	70	242	30	212	0.6
1910	2,185	16.0	34,897	71.5	24,953	77	40	227	[5] 187	.5
1911	2,127	15.6	33,119	83.2	27,557	86	31	134	[5] 103	.3
1912	2,117	16.8	35,664	66.3	23,636	60	1,855	1	1,854	5.2
1913	2,557	16.2	41,381	63.4	26,220	58	2,273	37	2,236	5.4
1914	2,541	16.8	42,779	86.5	37,018	98	13,027	147	12,880	30.1
1915	3,129	17.3	54,050	83.4	45,083	94	15,250	566	14,684	27.2
1916	3,213	15.2	48,862	122.1	59,676	135	13,703	428	13,275	27.2
1917	4,317	14.6	62,933	166.0	104,447	193	17,186	834	16,352	26.0
1918	6,391	14.2	91,041	151.6	138,038	158	36,467	638	35,829	39.4
1919	*7,679*	*9.9*	*75,992*	--------	--------	--------	--------	--------	--------	--------
1919	7,168	11.0	78,659	145.9	114,801	160	41,531	1,077	40,454	51.4
1920	4,825	12.8	61,915	146.4	90,626	161	47,337	452	46,885	75.7
1921	4,851	12.6	61,023	84.0	51,274	92	29,944	700	29,244	47.9
1922	6,757	14.9	100,986	63.9	64,523	75	51,663	99	51,564	51.1
1923	4,936	11.3	55,961	59.3	33,168	65	19,902	2	19,900	35.6
1924	*3,744*	*14.9*	*55,674*	--------	--------	--------	--------	--------	--------	--------
1924	3,941	15.0	59,076	95.2	56,261	114	50,242	1	50,241	85.0
1925	3,800	11.3	42,779	79.1	33,819	88	12,647	--------	12,646	29.6
1926	3,419	10.3	35,361	83.0	29,348	98	21,698	1	21,697	61.4
1927	3,458	15.1	52,111	83.5	43,487	104	26,346	2	26,345	50.6
1028	3,310	11.7	38,591	83.6	32,255	95	9,488	1	9,487	24.6
1929	*3,033*	*11.3*	*34,303*	--------	--------	--------	--------	--------	--------	--------
1929	3,110	11.4	35,482	85.7	30,395	90	2,600	1	2,599	7.3
1930	3,612	12.8	46,275	44.0	20,366	51	227	88	139	.3
1931	3,104	10.4	32,290	33.7	10,863	42	909	1	908	2.8
1932	3,344	12.2	40,639	27.6	11,198	41	311	14	297	.7
1933 [6]	2,352	9.0	21,184	59.4	12,593	--------	--------	--------	--------	--------

[1] Beginning with 1919 prices are weighted average prices for crop marketing season.
[2] Prices are from Minneapolis Daily Market Record and are averages of daily prices weighted by car-lot sales.
[3] Compiled from Commerce and Navigation of the United States, 1909–17; Foreign Commerce and Navigation of the United States, 1918; Monthly Summary of Foreign Commerce of the United States, June issues, 1919–26; January and June issues, 1927–33, and official records of the Bureau of Foreign and Domestic Commerce. Rye—General imports, 1909; imports for consumption, 1910–33. Rye flour—Imports for consumption, 1909–33. Rye flour converted to rye on the basis that 1 barrel of rye flour is the product of 6 bushels of grain.
[4] Total exports (domestic plus foreign) minus total imports.
[5] Net imports.
[6] Preliminary.

Bureau of Agricultural Economics.
Production figures are estimates of the Crop Reporting Board, revised 1919–28. See introductory text; italic figures are census returns. See 1927 Yearbook, p. 764, for data for earlier years.

TABLE 31.—*Rye: Acreage, yield, production, and weighted average price per bushel received by producers, by States, averages, and annual 1932 and 1933*

State and division	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1926–30	1932	1933 [1]	Average, 1921–30	1932	1933 [1]	Average, 1926–30	1932	1933 [1]	1932	1933 [2]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Cents*	*Cents*
New York	22	18	16	14.4	15.5	15.0	316	279	240	45	74
New Jersey	30	22	22	17.0	17.0	16.0	515	374	352	46	76
Pennsylvania	105	124	119	13.6	12.5	13.5	1,407	1,550	1,606	45	67
North Atlantic	156	164	157	14.4	13.4	14.0	2,238	2,203	2,198	45.2	69.2
Ohio	39	44	55	12.5	13.0	12.5	500	572	688	32	68
Indiana	93	89	89	12.1	11.5	10.0	1,150	1,024	890	29	65
Illinois	53	45	50	15.0	12.5	12.5	778	562	625	29	66
Michigan	156	158	125	12.9	13.5	10.5	2,019	2,133	1,312	30	57
Wisconsin	209	254	226	12.2	12.0	10.0	2,480	3,048	2,260	34	59
Minnesota	413	310	291	16.0	16.0	12.5	6,318	4,960	3,638	29	56
Iowa	43	41	35	16.2	14.5	14.0	670	594	490	26	59
Missouri	15	12	11	9.2	7.5	7.5	132	90	82	38	77
North Dakota	1,291	1,099	571	11.8	11.0	6.5	14,848	12,089	3,712	22	49
South Dakota	214	475	190	12.8	15.0	4.0	2,828	7,125	760	21	50
Nebraska	254	283	214	11.6	10.0	8.0	3,049	2,830	1,712	24	49
Kansas	25	19	16	10.6	11.0	8.0	285	209	128	25	62
North Central	2,804	2,829	1,873	12.9	12.5	8.7	35,057	35,236	16,297	25.1	55.5
Delaware	4	7	5	13.6	12.5	10.5	64	88	52	47	91
Maryland	17	19	17	13.4	12.0	13.0	229	228	221	43	79
Virginia	39	53	55	10.7	10.0	10.5	437	530	578	51	84
West Virginia	11	15	12	10.6	8.5	12.0	122	128	144	51	73
North Carolina	56	64	60	7.3	8.0	7.0	446	512	420	61	96
South Carolina	8	9	7	8.2	8.0	7.0	73	72	49	71	120
Georgia	15	14	13	6.2	6.3	5.5	99	88	72	69	102
South Atlantic	151	181	169	9.2	9.1	9.1	1,470	1,646	1,536	54.6	87.8
Kentucky	16	13	12	11.2	9.0	11.0	190	117	132	44	81
Tennessee	16	19	16	6.9	6.0	6.5	112	114	104	55	90
Oklahoma	10	6	5	8.4	10.0	7.5	97	60	38	26	72
Texas	3	3	2	10.2	9.0	6.0	39	27	12	26	71
South Central	45	41	35	8.9	7.8	8.2	439	318	286	43.1	82.9
Montana	74	40	38	12.0	13.0	7.0	873	520	266	18	40
Idaho	4	4	3	12.4	12.0	11.0	46	48	33	27	48
Wyoming	38	24	23	8.3	6.5	5.5	309	156	126	25	46
Colorado	71	25	18	9.0	6.0	6.5	628	150	117	23	48
Utah	3	3	3	9.3	8.0	7.0	31	24	21	46	63
Washington	17	12	12	11.4	8.0	7.0	211	96	84	40	61
Oregon	19	21	21	13.8	11.5	10.5	261	242	220	44	64
Western	226	129	118	10.4	9.6	7.3	2,360	1,236	867	27.1	50.9
United States	3,382	3,344	2,352	12.6	12.2	9.0	41,564	40,639	21,184	27.6	59.4

[1] Preliminary.
[2] Average price for 6 months.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 32.—*Rye: Acreage, yield per acre, and production in specified countries, average 1921–22 to 1925–26, annual 1930–31 to 1933–34*

Country	Acreage					Yield per acre					Production				
	Average, 1921–22 to 1925–26	1930–31	1931–32	1932–33	1933–34 [1]	Average, 1921–22 to 1925–26	1930–31	1931–32	1932–33	1933–34 [1]	Average, 1921–22 to 1925–26	1930–31	1931–32	1932–33	1933–34 [1]
NORTHERN HEMISPHERE															
North America:	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Canada	1, 386	1, 448	778	774	583	14. 4	15. 2	6. 8	11. 5	8. 1	19, 994	22, 018	5, 322	8, 938	4, 725
United States	4, 857	3, 612	3, 104	3, 344	2, 352	13. 2	12. 8	10. 4	12. 2	9. 0	63, 965	46, 275	32, 290	40, 639	21, 184
Total	6, 243	5, 060	3, 882	4, 118	2, 935	13. 4	13. 5	9. 7	12. 0	8. 8	83, 959	68, 293	37, 612	49, 577	25, 909
Europe:															
Norway	28	19	15	16	16	27. 9	29. 3	25. 2	32. 6	27. 4	780	556	378	522	438
Sweden	836	596	512	516	545	26. 2	28. 8	21. 8	33. 1	33. 5	21, 911	17, 182	11, 146	17, 094	18, 267
Denmark	535	369	332	297	352	24. 6	27. 2	25. 3	29. 4	29. 1	13, 162	10, 025	8, 406	8, 736	10, 236
Netherlands	501	475	445	410	406	31. 4	31. 4	31. 8	33. 8	33. 7	15, 731	14, 892	14, 167	13, 864	13, 688
Belgium	559	574	549	562	553	36. 8	32. 5	37. 3	42. 1	39. 8	20, 564	18, 629	20, 482	23, 662	22, 019
Luxemburg	19	22	16	20	20	18. 4	21. 8	21. 0	24. 8	27. 4	349	480	336	496	549
France	2, 196	1, 846	1, 760	1, 732	1, 714	18. 5	15. 4	16. 8	19. 6	21. 4	40, 645	28, 393	29, 518	33, 876	36, 718
Spain	1, 802	1, 551	1, 516	1, 516	1, 458	15. 4	13. 9	13. 9	17. 1	13. 7	27, 721	21, 543	21, 102	25, 905	19, 986
Portugal	604	408	427	366	366	8. 5	12. 0	11. 9	17. 5	9. 9	5, 110	4, 901	5, 070	6, 411	3, 615
Italy	317	302	304	288	285	19. 8	20. 3	21. 5	21. 9	23. 8	6, 277	6, 127	6, 521	6, 313	6, 794
Switzerland	55	50	46	45	46	31. 8	29. 1	30. 5	32. 9	32. 0	1, 747	1, 457	1, 401	1, 480	1, 472
Germany	10, 745	11, 641	10, 789	10, 996	11, 179	23. 8	26. 0	24. 4	29. 9	30. 7	255, 937	302, 312	262, 977	329, 255	343, 570
Austria	888	927	934	944	977	18. 3	22. 3	20. 3	25. 7	32. 8	16, 242	20, 635	18, 931	24, 227	32, 066
Czechoslovakia	2, 128	2, 586	2, 470	2, 569	2, 584	24. 5	27. 2	22. 1	33. 3	31. 8	52, 200	70, 373	54, 630	85, 660	82, 104
Hungary	1, 591	1, 611	1, 486	1, 553	1, 674	16. 9	17. 6	14. 6	19. 5	21. 8	26, 839	28, 406	21, 672	30, 300	36, 472
Yugoslavia	477	610	603	600	633	12. 4	12. 8	12. 6	13. 9	15. 3	5, 930	7, 825	7, 614	8, 328	9, 657
Greece	84	158	172	163	191	12. 5	11. 6	10. 5	16. 1	17. 0	1, 051	1, 837	1, 800	2, 629	3, 255
Bulgaria	442	657	600	544	523	13. 2	19. 2	17. 8	18. 6	20. 8	5, 831	12, 620	10, 653	10, 135	10, 865
Rumania	692	968	1, 006	861	958	12. 1	18. 9	13. 9	12. 2	18. 2	8, 371	18, 288	13, 962	10, 513	17, 417
Poland	12, 911	14, 567	14, 263	13, 951	14, 312	16. 0	18. 8	15. 7	17. 2	17. 6	206, 884	273, 923	224, 500	240, 556	251, 565
Lithuania	1, 355	1, 197	1, 257	1, 194	1, 210	16. 9	21. 0	13. 0	17. 4	18. 7	22, 942	25, 177	16, 281	20, 808	22, 595
Latvia	624	660	572	593	637	15. 3	21. 8	9. 8	19. 9	21. 9	9, 535	14, 377	5, 615	11, 793	13, 979
Estonia	[2] 394	367	356	364	373	[2] 15. 9	24. 2	16. 3	19. 5	22. 4	[2] 6, 246	8, 884	5, 820	7, 113	8, 358
Finland	578	515	554	538	563	19. 6	25. 7	21. 3	24. 1	24. 9	11, 316	13, 244	11, 792	12, 966	14, 027
Russia	59, 672	69, 147	68, 378	65, 390	--------	11. 4	13. 4	--------	13. 3	--------	679, 304	929, 174	--------	866, 880	952, 308
Total European countries reporting all years	40, 361	42, 676	40, 984	40, 638	41, 575	19. 4	21. 6	18. 9	22. 9	23. 6	783, 321	922, 086	774, 774	932, 642	979, 712

Estimated European total, excluding Russia	40,500	42,700	41,000	40,700	41,600	----	----	----	----	----	784,000	923,000	776,000	933,000	980,000
Total Northern Hemisphere countries reporting all years	46,604	47,736	44,866	44,756	44,510	18.6	20.7	18.1	21.9	22.6	867,280	990,379	812,386	982,219	1,005,621
Estimated Northern Hemisphere total, excluding Russia and China	47,100	48,500	45,800	45,400	45,200	----	----	----	----	----	875,000	1,006,000	829,000	994,000	1,018,000
SOUTHERN HEMISPHERE															
Chile	4	8	7	7	----	16.0	15.0	11.7	----	----	64	120	82	----	----
Argentina	279	500	920	[3] 1,623	[3] 1,768	11.0	8.3	10.6	[4] 8.0	[4] 5.7	3,061	4,129	9,744	12,991	10,078
Union of South Africa	143	----	----	----	----	5.7	----	----	----	----	816	----	----	----	----
Australia	4	6	4	----	----	12.8	14.5	13.5	----	----	51	87	54	----	----
Estimated world total, excluding Russia and China	47,700	50,000	47,200	47,100	47,100	----	----	----	----	----	880,000	1,012,000	840,000	1,009,000	1,030,000

[1] Preliminary. [2] 4-year average. [3] Area sown. [4] Computed from sown acreage.

Bureau of Agricultural Economics.

Both acreage and production figures refer to the year of harvest. Harvests of the Northern Hemisphere countries are combined with those of the Southern Hemisphere which immediately follow; thus, for 1933–34 the crop harvested in the Northern Hemisphere countries in 1933 is combined with the Southern Hemisphere harvest which begins late in 1933 and ends early in 1934.

TABLE 33.—*Rye: Production, world and selected countries, 1894–95 to 1933–34*

Crop year	World production, excluding Russia and China	Northern Hemisphere production, excluding Russia and China	European production, excluding Russia	Selected countries: Russia [1]	United States	Germany	France	Poland	Hungary	Czechoslovakia
	Million bushels	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*
1894–95	713	712	668	863	30	328	75	--------	58	--------
1895–96	664	663	618	773	31	304	72	--------	47	--------
1896–97	716	714	673	790	29	336	70	--------	51	--------
1897 98	648	646	600	654	33	322	48	--------	36	--------
1898–99	726	725	678	738	33	356	67	--------	46	--------
1899–1900	710	708	664	912	30	342	67	--------	50	--------
1900–1901	675	673	629	920	31	337	59	--------	42	--------
1901–2	690	688	644	755	31	321	58	--------	44	--------
1902–3	733	731	682	919	35	374	46	--------	53	--------
1903–4	767	765	720	912	32	390	58	--------	51	--------
1904–5	755	754	709	1,008	32	396	53	--------	46	--------
1905–6	782	781	732	737	35	378	59	--------	53	--------
1906–7	787	785	736	668	37	379	51	--------	54	--------
1907–8	751	749	700	815	35	384	56	--------	42	--------
1908–9	827	826	776	790	36	423	52	--------	48	--------
1909–10	872	870	821	904	35	447	56	--------	47	--------
1910–11	818	816	768	875	35	414	44	--------	52	--------
1911–12	828	826	779	769	33	428	47	--------	54	--------
1912–13	862	860	810	1,051	36	457	49	--------	57	--------
1913–14	892	889	834	1,011	41	481	50	--------	56	--------
1914–15	766	763	707	[2] 870	43	410	44	--------	45	--------
1915–16	691	689	621	[3] 910	54	360	33	--------	48	--------
1916–17	663	661	598	[4] 771	49	352	33	--------	--------	--------
1917–18	548	545	466	614	63	[5] 228	25	--------	--------	--------
1918–19	590	588	476	--------	91	260	[5] 30	--------	--------	--------
1919–20	689	687	586	--------	79	238	31	103	--------	33
1920–21	620	617	532	368	62	194	37	74	[5] 20	33
1921–22	858	855	766	401	61	268	44	175	23	54
1922–23	866	860	720	568	101	206	38	203	25	51
1923–24	924	918	832	784	56	263	37	243	31	53
1924–25	739	735	655	737	59	226	40	148	22	45
1925–26	1,013	1,006	947	906	43	317	44	265	33	58
1926–27	825	817	763	941	35	252	30	204	31	56
1927–28	898	887	813	965	52	269	34	232	22	60
1928–29	975	965	905	760	39	335	34	241	33	72
1929–30	1,011	1,004	940	801	35	321	36	276	31	72
1930–31	1,012	1,006	923	929	46	302	28	274	28	70
1931–32	840	829	776	--------	32	263	30	224	22	55
1932–33	1,009	994	933	867	41	329	34	241	30	86
1933–34 [6]	1,030	1,018	980	952	21	344	37	252	36	82

[1] Includes all Russian territory reporting for the years shown.
[2] Exclusive of the 10 Vistula Provinces of Russian Poland and the Province of Batum in Transcaucasia.
[3] Exclusive of Russian Poland, Lithuania, parts of Latvia and the Ukraine, and the 2 Provinces of Batum and Elizabetpol in Transcaucasia.
[4] Beginning with this year, estimates for the present territory of the Union of Socialist Soviet Republics, exclusive of Turkestan, Transcaucasia, and the Far East, which territory in 1924 produced 8,646,000 bushels.
[5] Beginning with this year post-war boundaries, therefore not comparable with earlier years.
[6] Preliminary.

Bureau of Agricultural Economics.
Production figures refer to the year of harvest. Harvests of the Northern Hemisphere countries are combined with those of the Southern Hemisphere which immediately follow; thus, for 1933–34 the crop harvested in the Northern Hemisphere countries in 1933 is combined with the Southern Hemisphere harvest which begins late in 1933 and ends early in 1934.

TABLE 34.—*Rye: Monthly marketings by farmers, as reported by about 3,500 mills and elevators, United States, 1923–24 to 1932–33*

Year	Percentage of receipts during—												
	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Year
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
1923–24	5.3	18.8	19.2	14.2	9.4	8.5	5.4	5.9	3.5	2.5	3.0	4.3	100.0
1924–25	3.9	16.9	25.4	23.3	10.7	7.0	5.0	3.1	1.7	1.0	1.2	.8	100.0
1925–26	5.2	19.2	23.3	12.4	8.7	8.9	6.6	4.6	3.1	2.4	2.8	2.8	100.0
1926–27	8.0	20.1	19.7	13.0	8.5	6.0	6.0	6.0	3.7	2.6	3.0	3.4	100.0
1927–28	4.7	19.0	25.6	17.5	9.8	5.8	4.4	4.1	3.7	2.4	1.7	1.3	100.0
1928–29	4.5	19.5	27.0	16.3	9.3	6.1	4.5	5.1	2.9	1.9	1.4	1.5	100.0
1929–30	12.3	34.0	18.0	11.6	6.6	6.0	3.4	2.3	1.7	1.4	1.5	1.2	100.0
1930–31	11.2	32.7	23.0	11.7	4.7	4.2	2.6	2.7	1.9	1.9	1.8	1.6	100.0
1931–32	11.7	21.6	14.7	10.7	8.6	6.5	6.0	5.5	5.2	3.8	3.3	2.4	100.0
1932–33	7.5	17.4	13.3	8.6	6.1	4.7	4.6	3.5	4.7	6.4	9.2	14.0	100.0

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TABLE 35.—*Rye: Commercial stocks, 1926–27 to 1933–34*

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
DOMESTIC RYE IN UNITED STATES [1]												
1926–27							13,092	12,880	13,897	13,905	7,818	3,783
1927–28	1,018	1,454	2,091	2,608	2,077	2,970	3,281	4,027	4,321	5,090	5,544	2,662
1928–29	2,499	2,170	1,351	2,684	4,771	5,589	6,176	6,185	6,440	6,914	6,598	6,532
1929–30	6,632	6,614	8,561	9,771	11,453	12,033	12,914	14,536	14,379	14,285	13,701	12,572
1930–31	12,481	12,073	14,248	17,010	17,291	17,173	16,361	15,629	14,270	13,199	10,990	10,599
1931–32	9,989	9,838	9,405	10,095	10,376	10,431	10,223	10,085	10,006	10,124	9,493	9,416
1932–33	8,942	8,955	9,052	8,700	8,485	8,030	7,993	7,934	7,790	7,688	8,006	8,806
1933–34	10,501	11,273	11,998	12,968	13,158	14,153						
UNITED STATES RYE IN CANADA [2]												
1926–27							1,658	1,704	1,583	1,384	3,379	869
1927–28	1,465	589	686	1,385	1,390	1,208	930	772	351	259	47	512
1928–29	750	449	357	838	1,248	1,478	1,707	1,426	1,255	1,310	1,367	1,379
1929–30	1,182	1,255	1,540	2,900	2,883	2,113	2,734	2,720	2,519	2,692	2,871	3,821
1930–31	3,789	3,761	3,432	3,139	2,792	2,900	2,131	2,128	2,126	2,119	2,110	1,911
1931–32	1,682	1,792	1,775	1,229	821	782	754	732	675	250	213	295
1932–33	242	160	121	89	99	99	99	99	99	99	99	1
1933–34	1	1	0	0	0	0						
CANADIAN RYE IN CANADA [3]												
1926–27							3,546	3,758	3,842	3,848	3,064	1,226
1927–28	1,035	1,149	920	2,444	3,479	3,086	4,137	4,583	4,955	4,773	4,525	2,413
1928–29	2,514	1,691	603	2,444	3,430	3,595	4,834	4,698	4,540	4,423	4,120	3,907
1929–30	2,180	3,406	3,982	5,898	7,268	8,087	8,336	8,348	8,517	8,307	8,112	7,992
1930–31	7,937	7,519	8,541	11,320	12,546	12,780	13,197	13,150	13,059	13,161	12,710	12,547
1931–32	12,597	12,161	12,356	12,309	13,021	12,202	11,614	11,161	10,994	10,904	10,345	9,642
1932–33	7,379	5,238	4,704	4,928	4,750	4,514	4,441	4,470	4,541	4,635	4,655	4,806
1933–34	5,036	5,401	5,567	4,687	4,459	4,088						
CANADIAN RYE IN UNITED STATES [4]												
1926–27							2,266	1,922	1,631	494	689	792
1927–28	63	50	20	124	441	802	851	458	203	90	90	371
1928–29	248	255	12	83	205	258	208	532	559	440	451	480
1929–30	380	394	432	320	429	431	431	431	371	370	426	270
1930–31	188	187	172	172	430	651	489	446	528	349	273	2
1931–32	2	2	2	390	388	1,405	1,746	1,703	1,389	1,631	794	600
1932–33	498	347	412	412	502	412	548	545	544	543	543	213
1933–34	213	192	283	260	578	103						

[1] Includes domestic rye in store in public and private elevators in 41 markets and rye afloat in vessels or barges in harbors of lake and seaboard ports. Does not include rye in transit either by rail or water, stocks in mills, or mill elevators attached to mills, or private stocks of rye intended for local use.

[2] Includes United States rye in store at 15 Canadian points or afloat in vessels or barges in the harbors of lake and seaboard ports. Does not include rye in transit to Canadian ports.

[3] Includes practically all Canadian rye held within Canadian boundaries, exclusive of farm and certain mill stocks.

[4] Includes Canadian rye in store and afloat at 10 United States lake and seaboard ports but not Canadian rye in transit on lakes or canals.

Bureau of Agricultural Economics; compiled from weekly reports to the grain, hay, and feed market news service.

Data are for stocks on the Saturday nearest the 1st day of the month.

TABLE 36.—*Rye: Classification of receipts graded by licensed inspectors, all inspection points, 1923–24 to 1932–33*

Year beginning July	Grade					Total
	No. 1	No. 2	No. 3	No. 4	Sample	
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
1923–24	14, 394	13, 532	3, 872	1, 061	473	33, 332
1924–25	27, 977	24, 251	8, 841	2, 957	876	64, 902
1925–26	3, 969	11, 730	5, 111	1, 794	494	23, 098
1926–27	3, 892	9, 921	5, 794	3, 597	1, 445	24, 649
1927–28	10, 659	15, 573	4, 976	1, 409	564	33, 181
1928–29	1, 787	13, 081	6, 646	1, 994	626	24, 134
1929–30	8, 985	10, 611	1, 642	475	288	22, 001
1930–31	5, 804	9, 320	1, 198	225	103	16, 650
1931–32	2, 071	5, 531	927	240	71	8, 840
1932–33	3, 821	7, 713	721	261	71	12, 587

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TABLE 37.—*Rye, including flour in terms of grain: International trade, average 1925–26 to 1929–30, annual 1929–30 to 1932–33*

Country	Year beginning July									
	Average, 1925–26 to 1929–30		1929–30		1930–31		1931–32		1932–33 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Germany	15, 498	13, 815	20, 484	5, 035	4, 518	1, 233	4, 393	18, 075	6, 385	15, 808
United States	14, 556	0	2, 600	0	227	0	909	0	311	0
Russia	7, 406	0	7, 091	0	29, 084	0	43, 267	0	9, 408	0
Poland	6, 597	2, 453	14, 150	34	15, 743	10	4, 889	226	12, 985	386
Hungary	6, 559	1	5, 942	0	3, 319	0	2, 712	0	3, 003	0
Canada	6, 328	129	835	298	1, 968	18	6, 689	11	5, 132	6
Argentina	4, 511	0	1, 916	0	1, 610	0	9, 272	0	5, 306	0
Rumania	1, 133	12	[2] 661	[2] 0	2, 267	0	3, 034	0	[2] 44	[2] 0
Bulgaria	486	0	14	0	2, 444	0	1, 841	0	123	0
Yugoslavia [3]	176	6	60	1	2	6	0	0	--------	--------
Algeria [3]	50	3	63	8	64	0	54	0	--------	--------
Total	63, 300	16, 419	53, 816	5, 376	61, 246	1, 267	77, 060	18, 312	42, 697	16, 200
PRINCIPAL IMPORTING COUNTRIES										
Denmark	414	8, 109	394	10, 766	423	13, 468	319	8, 230	312	10, 683
Norway	--------	7, 027	--------	7, 047	--------	5, 216	--------	6, 294	--------	5, 046
Finland	10	6, 193	9	6, 509	5	3, 136	4	2, 081	1	2, 647
Czechoslovakia	963	4, 701	3, 046	502	1, 737	719	886	9, 832	1, 026	396
Austria	103	4, 645	69	5, 258	86	4, 592	60	3, 185	77	1, 134
Netherlands	528	4, 525	207	4, 943	1, 454	11, 267	805	7, 047	172	8, 629
Latvia [3]	25	3, 203	12	3, 916	1	471	1	179	--------	--------
Sweden	537	3, 008	49	4, 225	20	1, 131	50	2, 188	52	739
Estonia	--------	2, 244	--------	3, 591	--------	515	--------	42	--------	0
Belgium	43	1, 625	15	1, 621	240	6, 304	1, 030	4, 875	720	4, 934
France	31	1, 535	12	439	19	4, 286	1	3, 333	1	1, 068
United Kingdom [4]	98	696	25	315	13	345	12	377	--------	--------
Italy	9	386	1	575	1	1, 323	1	336	1	559
Switzerland	0	91	--------	296	0	296	1	177	0	615
Total	2, 761	47, 988	3, 839	50, 003	3, 999	53, 069	3, 170	48, 176	2, 362	36, 450

[1] Preliminary.
[2] Monthly Crop Report and Agricultural Statistics.
[3] Year beginning Aug. 1; International Year book of Agricultural Statistics.
[4] Calendar year.

Bureau of Agricultural Economics; official sources except where otherwise noted.

TABLE 38.—*Rye: Average price per bushel received by producers, United States, 1924–25 to 1933–34*

Year	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	68.8	79.8	80.1	105.7	108.6	112.7	126.2	132.2	125.1	100.9	103.6	101.8	96.3
1925–26	92.3	92.8	81.9	74.1	73.4	86.8	88.2	82.5	73.4	73.8	72.5	76.0	83.1
1926–27	80.7	86.1	81.6	82.4	83.0	82.4	83.6	88.4	86.4	85.2	90.1	94.9	84.2
1927–28	91.2	80.6	81.4	81.0	84.0	87.8	88.0	89.5	96.0	99.8	111.5	106.8	84.7
1928–29	99.2	83.6	81.8	87.1	86.3	87.2	87.9	91.5	91.5	86.0	79.1	75.7	85.4
1929–30	85.3	91.8	89.2	89.9	85.5	88.4	85.7	78.3	68.4	68.7	63.8	60.7	87.7
1930–31	43.6	53.0	53.1	47.6	41.6	41.1	37.4	34.9	34.3	32.8	33.0	31.4	47.9
1931–32	33.0	32.5	33.2	33.6	41.4	36.8	36.8	36.3	37.7	36.6	33.4	28.8	34.7
1932–33	22.0	23.3	23.6	22.3	22.1	21.1	22.7	21.9	22.8	30.1	38.9	43.5	27.5
1933–34	78.2	58.8	61.4	52.7	55.4	51.9	------	------	------	------	------	------	---------

Bureau of Agricultural Economics; based on returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; yearly price obtained by weighting monthly prices by monthly marketings.

TABLE 39.—*Rye No. 2: Weighted average price* [1] *per bushel of reported cash sales, Minneapolis, 1924–25 to 1933–34*

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	83	86	95	121	123	133	154	154	130	106	114	111	114
1925–26	95	100	83	77	81	98	99	91	81	85	83	89	88
1926–27	102	97	93	95	94	94	99	102	99	99	109	111	98
1927–28	104	92	92	92	99	102	103	106	114	124	128	123	104
1928–29	111	94	94	94	98	97	101	105	100	89	85	84	95
1929–30	107	98	97	97	95	98	91	78	66	68	65	57	90
1930–31	55	60	55	49	43	44	38	37	36	35	36	37	51
1931–32	37	38	39	41	51	45	46	46	47	45	39	32	42
1932–33	32	34	34	32	31	31	33	32	35	43	52	62	41
1933–34	83	72	71	62	62	60	------	------	------	------	------	------	---------

[1] Average of daily prices weighted by car-lot sales.

Bureau of Agricultural Economics; compiled from Minneapolis Daily Market Record.
Chicago prices, 1909–10 to 1926–27 appear in 1927 Yearbook, table 46. Minneapolis prices, 1909–10 to 1923–24, appear in 1930 Yearbook, table 43.

Table 40.—*Corn: Acreage, production, value, foreign trade, etc., United States, 1890–1933*

Year	Acreage harvested	Average yield per acre	Production: In grain equivalent on entire acreage	Production: Harvested as grain	Price per bushel received by producers Dec. 1[1]	Farm value, basis Dec. 1 price	Price per bushel at Chicago, year beginning November[2]	Foreign trade, including meal, year beginning July[3]: Domestic exports	Imports	Net exports[4]: Total	Percentage of production
	1,000 acres	*Bushels*	*1,000 bushels*	*1,000 bushels*	*Cents*	*1,000 dollars*	*Cents*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Percent*
1890	70,390	20.7	1,460,406		50.0	729,647	58	32,042	2	32,039	2.2
1891	74,496	27.6	2,055,823		39.7	816,917	47	76,602	16	76,596	3.7
1892	72,610	23.6	1,713,688		38.8	664,390	41	47,122	2	47,120	2.7
1893	74,434	22.9	1,707,572		35.9	612,998	41	66,490	3	66,487	3.9
1894	69,396	19.3	1,339,680		45.1	604,523	44	28,585	17	28,569	2.1
1895	85,567	27.0	2,310,952		25.0	578,408	26	101,100	5	101,096	4.4
1896	86,560	28.9	2,503,484		21.3	532,884	25	178,817	7	178,811	7.1
1897	88,127	24.3	2,144,553		26.0	558,309	30	212,056	4	212,052	9.9
1898	88,304	25.6	2,261,119		28.4	642,747	34	177,255	4	177,252	7.8
1899	*94,914*	*28.1*		*2,666,324*							
1899	94,914	25.9	2,454,628		29.9	734,916	36	213,123	3	213,121	8.7
1900	95,042	26.4	2,505,148		35.1	878,243	43	181,405	5	181,400	7.2
1901	94,636	17.0	1,613,528		60.1	969,285	62	28,029	19	28,011	1.7
1902	95,517	27.4	2,619,499		40.1	1,049,791	47	76,639	41	76,598	2.9
1903	90,661	25.9	2,346,897		42.1	987,882	49	58,222	17	58,210	2.5
1904	93,340	27.1	2,528,662		43.7	1,105,690	48	90,293	16	90,278	3.6
1905	93,573	29.4	2,748,949		40.8	1,120,513	44	119,894	11	119,883	4.4
1906	93,643	30.9	2,897,662		39.3	1,138,053	50	86,368	11	86,358	3.0
1907	94,971	26.5	2,512,065		50.9	1,277,607	68	55,064	20	55,044	2.2
1908	95,603	26.6	2,544,957		60.0	1,527,679	65	37,665	258	37,437	1.5
1909	*98,383*	*25.9*		*2,552,190*							
1909	98,383	26.1	2,572,336		58.6	1,507,185	59	38,128	118	38,010	1.5
1910	104,035	27.7	2,886,260		48.0	1,384,817	53	65,615	53	65,562	2.3
1911	105,825	23.9	2,531,488		61.8	1,565,258	71	41,797	54	41,744	1.6
1912	107,083	29.2	3,124,746		48.7	1,520,454	53	50,780	903	49,913	1.6
1913	105,820	23.1	2,446,988		69.1	1,692,092	70	10,726	12,368	[5] 1,639	
1914	103,435	25.8	2,672,804		64.4	1,722,070	70	50,668	9,899	40,816	1.5
1915	106,197	28.2	2,994,793		57.5	1,722,680	79	39,897	5,211	34,761	1.2
1916	105,296	24.4	2,566,927		88.9	2,280,729	111	66,753	2,270	65,092	2.5
1917	116,730	26.3	3,065,233		127.9	3,920,228	163	49,073	3,197	45,950	1.5
1918	104,467	24.0	2,502,665		136.5	3,416,240	162	23,019	3,346	19,684	.8
1919 [6]	*87,772*	*26.7*		*2,345,833*							
1919	98,145	27.3	2,678,541	2,341,870	150.7	4,035,445	159	16,729	10,283	6,509	.2
1920	101,359	30.3	3,070,604	2,695,085	61.0	1,872,085	62	70,906	5,791	66,116	2.2
1921	103,155	28.4	2,928,442	2,556,924	52.7	1,544,722	55	179,490	142	179,374	6.1
1922	100,345	27.0	2,707,306	2,229,496	75.2	2,036,831	73	96,596	182	96,415	3.6
1923	101,123	28.4	2,875,292	2,429,551	83.5	2,400,513	88	23,135	240	22,896	.8
1924 [6]	*82,329*	*22.2*		*1,823,880*							
1924	100,420	22.9	2,298,071	1,899,751	105.3	2,420,928	106	9,791	4,618	5,348	.2
1925	101,331	28.2	2,853,083	2,413,364	69.9	1,995,031	75	24,783	637	24,150	.8
1926	99,452	25.9	2,574,511	2,133,404	75.3	1,938,403	87	19,819	1,098	18,731	.7
1927	98,357	27.2	2,677,671	2,249,926	84.9	2,273,599	101	19,409	5,463	14,364	.5
1928	100,336	27.1	2,714,535	2,282,938	84.3	2,288,041	92	41,874	490	41,387	1.5
1929 [6]	*83,162*	*25.6*		*2,130,752*							
1929	97,806	25.9	2,535,546	2,140,215	79.8	2,024,132	83	10,281	497	9,788	.4
1930	101,083	20.4	2,065,273	1,733,429	59.4	1,227,659	60	3,317	1,747	1,572	.1
1931	105,948	24.4	2,588,509	2,229,088	32.1	830,725	36	3,969	386	3,583	.1
1932	108,668	26.8	2,906,873	2,507,303	31.8	925,277	35	8,775	195	8,580	.3
1933 [7]	102,239	22.8	2,330,237	2,025,015	40.6	945,963					

[1] Beginning with 1919 prices are weighted average prices for crop marketing season.
[2] Prices 1890–98 are averages of the weekly quotations for No. 2 or better in annual reports of Chicago Board of Trade; subsequent prices are compiled from the Chicago Daily Trade Bulletin, average of daily prices weighted by car-lots sales, No. 3 yellow.
[3] Compiled from Commerce and Navigation of the United States, 1890–1917; Foreign Commerce and Navigation of the United States, 1918; Monthly Summary of Foreign Commerce of the United States, June issues 1919–26; January and June issues, 1927–33 and official records of the Bureau of Foreign and Domestic Commerce. Corn—General imports 1890–1909 and 1912–33; imports for consumption 1910 and 1911. Corn meal—Imports for consumption, 1890–1933. Corn meal converted to terms of grain on the basis of 4 bushels of corn to a barrel of meal.
[4] Total exports (domestic plus foreign) minus total imports.
[5] Net imports, i.e., total imports minus total exports (domestic plus foreign).
[6] Corn harvested for grain; total acreage of corn in 1924 is 98,401,627 acres; 1929, 97,740,740 acres.
[7] Preliminary.

Bureau of Agricultural Economics.
Production figures are estimates of the Crop Reporting Board, revised, 1919–28. See introductory text; italic figures are census returns. See 1927 Yearbook, p. 774, for data for earlier years.

TABLE 41.—*Corn: Acreage, yield, production, and weighted average price per bushel received by producers, by States, averages, and annual 1932 and 1933*

State and division	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1926–30	1932	1933 [1]	Average, 1921–30	1932	1933 [1]	Average, 1926–30	1932	1933 [1]	1932	1933 [2]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Cents*	*Cents*
Maine	13	16	17	39.4	41.0	41.0	520	656	697	55	62
New Hampshire	14	14	15	42.5	40.0	40.0	568	560	600	57	72
Vermont	63	64	63	40.7	41.0	40.0	2,613	2,624	2,520	55	56
Massachusetts	42	38	38	43.0	40.0	40.0	1,738	1,520	1,520	59	80
Rhode Island	9	9	10	40.7	39.0	41.0	341	351	410	57	90
Connecticut	51	54	53	40.6	42.0	39.0	2,048	2,268	2,067	64	75
New York	576	583	566	34.8	35.0	31.0	18,934	20,405	17,546	52	58
New Jersey	176	165	167	40.8	42.0	36.0	6,944	6,930	6,012	45	56
Pennsylvania	1,246	1,255	1,280	39.8	37.0	39.5	44,818	46,435	50,560	49	54
North Atlantic	2,190	2,198	2,209	38.6	37.2	37.1	78,524	81,749	81,932	50.3	56.5
Ohio	3,493	3,433	3,364	35.6	35.5	33.5	116,902	121,872	112,694	32	38
Indiana	4,494	4,639	4,268	34.2	37.5	29.5	146,116	173,962	125,906	26	35
Illinois	8,897	9,353	8,324	35.0	43.0	27.0	298,228	402,179	224,748	27	36
Michigan	1,287	1,407	1,365	30.4	33.0	31.0	35,130	46,431	42,315	40	46
Wisconsin	2,001	2,184	2,228	33.8	37.0	35.0	66,399	80,808	77,980	36	42
Minnesota	4,388	4,945	4,846	32.4	36.5	29.5	140,822	180,492	142,957	28	32
Iowa	11,172	11,849	11,138	39.0	43.0	39.5	423,875	509,507	439,951	30	31
Missouri	6,088	6,472	6,019	27.0	30.5	23.5	150,693	197,396	141,446	27	40
North Dakota	991	1,404	1,334	22.3	19.0	15.0	19,228	26,676	20,010	27	35
South Dakota	4,960	5,030	3,370	24.0	14.7	12.0	107,836	73,941	40,440	25	35
Nebraska	9,356	10,644	10,431	25.1	25.3	22.5	224,658	269,293	234,698	27	31
Kansas	6,486	7,362	6,994	20.3	18.5	11.5	127,412	136,197	80,431	27	37
North Central	63,612	68,722	63,681	30.8	32.3	26.4	1,857,299	2,218,754	1,683,576	28.5	34.6
Delaware	136	147	145	27.9	29.0	25.0	3,550	4,263	3,625	45	49
Maryland	502	548	560	31.0	30.0	25.0	14,425	16,440	14,000	44	51
Virginia	1,515	1,496	1,571	22.2	18.0	23.5	32,873	26,928	36,918	52	59
West Virginia	446	446	464	26.3	25.0	30.0	11,408	11,150	13,920	51	57
North Carolina	2,092	2,322	2,392	18.4	15.0	18.5	39,328	34,830	44,252	54	67
South Carolina	1,454	1,656	1,573	14.0	10.8	14.5	20,751	17,885	22,808	61	70
Georgia	3,505	3,856	3,740	11.0	10.0	10.5	39,426	38,560	39,270	45	62
Florida	631	687	673	11.6	8.5	8.0	6,863	5,840	5,384	46	64
South Atlantic	10,282	11,158	11,118	16.4	14.0	16.2	168,625	155,896	180,177	50.4	62.2
Kentucky	2,928	2,811	2,727	22.5	24.0	25.0	64,144	67,464	68,175	39	48
Tennessee	2,876	2,927	2,810	21.2	20.3	23.5	59,546	59,418	66,035	45	52
Alabama	2,694	3,224	3,031	13.1	11.5	12.2	34,996	37,076	36,978	57	67
Mississippi	2,020	2,414	2,390	14.8	13.5	15.0	30,423	32,589	35,850	54	61
Arkansas	1,932	1,993	2,053	16.3	18.0	13.5	30,159	35,874	27,716	37	58
Louisiana	1,168	1,261	1,198	14.9	14.2	13.0	17,405	17,906	15,574	48	57
Oklahoma	2,969	3,288	2,598	17.2	20.0	7.5	54,305	65,760	19,485	23	46
Texas	4,357	5,707	5,422	16.8	18.0	13.8	78,426	102,726	74,824	32	53
South Central	20,943	23,625	22,229	17.4	17.7	15.5	369,404	418,813	344,637	38.6	54.3
Montana	150	215	215	14.8	12.0	11.5	1,952	2,580	2,472	40	53
Idaho	42	55	50	37.0	41.0	39.0	1,618	2,255	1,950	36	54
Wyoming	175	228	219	16.0	9.0	9.5	2,784	2,052	2,080	30	37
Colorado	1,554	1,909	2,004	14.3	7.5	11.0	22,936	14,318	22,044	28	37
New Mexico	235	297	238	14.5	11.0	14.0	3,556	3,267	3,332	37	56
Arizona	32	41	41	17.0	15.0	18.0	551	615	738	69	69
Utah	15	20	21	25.6	27.0	23.0	411	540	483	61	68
Nevada	2	2	2	24.6	24.0	22.0	50	48	44	66	75
Washington	33	38	41	36.0	34.5	38.0	1,222	1,311	1,558	45	53
Oregon	62	65	71	31.9	31.0	34.0	2,040	2,015	2,414	55	57
California	80	95	100	32.1	28.0	28.0	2,537	2,660	2,800	52	63
Western	2,380	2,965	3,002	16.7	10.7	13.3	39,656	31,661	39,915	36.5	45.1
United States	99,407	108,668	102,239	26.1	26.8	22.8	2,513,507	2,906,873	2,330,237	31.8	40.6

[1] Preliminary.
[2] Average price for 3 months.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 42.—*Corn: Utilization for grain, silage, hogging down, grazing, and forage, by States, 1932 and 1933*

State and division	1932					1933 [1]				
	For grain		For silage		Hogging down, grazing, and forage acreage	For grain		For silage		Hogging down, grazing, and forage acreage
	Acreage	Production	Acreage	Production		Acreage	Production	Acreage	Production	
	1,000 acres	*1,000 bushels*	*1,000 acres*	*1,000 short tons*	*1,000 acres*	*1,000 acres*	*1,000 bushels*	*1,000 acres*	*1,000 short tons*	*1,000 acres*
Maine	2	82	10	115	4	3	123	10	105	4
New Hampshire	3	120	9	94	2	3	120	10	115	2
Vermont	8	328	47	494	9	8	320	46	506	9
Massachusetts	9	360	21	242	8	9	360	21	231	8
Rhode Island	1	39	6	60	2	1	41	6	60	3
Connecticut	13	546	34	374	7	14	546	33	363	6
New York	106	3,710	377	3,582	100	123	3,813	354	3,186	89
New Jersey	127	5,334	30	264	8	130	4,680	30	264	7
Pennsylvania	924	34,188	270	2,160	61	967	38,196	250	2,250	63
North Atlantic	1,193	44,707	804	7,385	201	1,258	48,199	760	7,080	191
Ohio	3,096	109,908	117	994	220	3,048	103,632	111	755	205
Indiana	4,337	162,638	84	714	218	3,953	116,614	115	748	200
Illinois	8,745	376,035	234	1,872	374	7,415	200,205	236	1,298	673
Michigan	818	26,994	232	1,972	357	886	28,352	187	1,402	292
Wisconsin	883	33,554	1,054	7,905	247	927	33,372	1,083	8,231	218
Minnesota	3,333	121,654	406	3,248	1,206	3,260	96,170	480	3,600	1,106
Iowa	10,284	442,212	261	2,401	1,304	10,277	405,942	190	1,520	671
Missouri	5,877	179,248	45	292	550	5,459	131,016	42	252	548
North Dakota	128	2,432	112	280	1,164	133	2,128	148	370	1,053
South Dakota	3,576	55,786	106	509	1,348	2,203	31,944	189	378	978
Nebraska	10,005	253,126	75	315	564	9,866	221,985	95	428	470
Kansas	6,317	120,023	250	1,250	795	5,548	66,576	454	1,589	992
North Central	57,399	1,883,610	2,976	21,752	8,347	52,975	1,437,936	3,330	20,571	7,376
Delaware	143	4,147	3	36	1	140	3,500	3	26	2
Maryland	510	15,300	29	261	9	525	13,125	26	260	9
Virginia	1,411	25,398	55	358	30	1,501	35,274	46	460	24
West Virginia	408	10,200	28	224	10	428	13,268	26	221	10
North Carolina	2,203	33,045	12	54	107	2,300	42,550	12	66	80
South Carolina	1,617	17,464	3	12	36	1,537	22,286	3	12	33
Georgia	3,721	37,210	7	32	128	3,619	38,000	6	27	115
Florida	658	5,593	2	9	27	646	5,168	2	9	25
South Atlantic	10,671	148,357	139	986	348	10,696	173,171	124	1,081	298
Kentucky	2,710	65,040	14	98	87	2,624	65,600	16	120	87
Tennessee	2,838	57,611	13	72	76	2,745	64,508	14	91	51
Alabama	3,180	36,570	5	20	39	3,009	36,710	4	8	18
Mississippi	2,387	32,224	2	10	25	2,356	35,340	2	10	32
Arkansas	1,858	33,444	2	10	133	1,969	26,582	2	8	82
Louisiana	1,239	17,594	2	6	20	1,181	15,353	2	9	15
Oklahoma	3,176	64,790	12	48	100	2,434	18,255	14	42	150
Texas	5,557	100,026	8	30	142	5,251	72,464	8	22	163
South Central	22,945	407,299	58	294	622	21,569	334,812	62	310	598
Montana	60	780	8	20	147	34	408	8	16	173
Idaho	30	1,230	9	68	16	33	1,287	9	70	8
Wyoming	79	790	3	12	146	89	934	4	20	126
Colorado	1,649	14,016	46	138	214	1,783	21,396	64	320	157
New Mexico	257	2,827	4	24	36	186	2,604	3	21	49
Arizona	29	435	4	28	8	29	522	4	32	8
Utah	8	216	5	50	7	10	230	5	40	6
Nevada	1	24	1	10	0	1	22	1	8	0
Washington	12	420	10	100	16	16	608	9	86	16
Oregon	32	992	20	130	13	35	1,190	21	130	15
California	50	1,600	22	187	23	53	1,696	21	178	26
Western	2,207	23,330	132	767	626	2,269	30,897	149	921	584
United States	94,415	2,507,303	4,109	31,184	10,144	88,767	2,025,015	4,425	29,963	9,047

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 43.—*Corn: Production, world and selected countries, 1900–1901 to 1933–34*

Crop year	Estimated world production, excluding Russia	Estimated European production, excluding Russia	Selected countries						
			United States	Argentina	Rumania	Yugoslavia	Italy	Brazil	Russia[1]
	Million bushels	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*
1900–1901	3,593	445	2,505	99	85	18	88	--------	34
1901–2	2,762	497	1,614	84	117	19	100	--------	68
1902–3	3,686	391	2,619	149	68	18	71	--------	49
1903–4	3,554	459	2,347	175	80	19	89	--------	51
1904–5	3,505	279	2,529	141	20	9	90	--------	26
1905–6	3,904	403	2,749	195	59	21	97	--------	34
1906–7	4,095	533	2,898	72	131	28	93	--------	92
1907–8	3,761	441	2,512	136	58	18	88	--------	64
1908–9	3,789	465	2,545	177	79	21	96	--------	82
1909–10	3,946	499	2,572	175	70	34	102	--------	55
1910–11	4,152	564	2,886	28	104	29	104	--------	102
1911–12	3,895	502	2,531	296	111	27	95	--------	95
1912–13	4,448	547	3,125	197	104	--------	101	--------	94
1913–14	3,944	576	2,447	263	115	--------	111	--------	84
1914–15	4,190	559	2,673	325	103	--------	105	--------	[2] 90
1915–16	4,351	520	2,995	161	86	--------	122	--------	[3] 72
1916–17	3,777	389	2,567	59	--------	--------	82	204	[4] 62
1917–18	4,178	351	3,065	171	--------	--------	83	95	--------
1918–19	3,579	299	2,503	224	--------	--------	77	87	--------
1919–20	4,105	454	2,679	259	[5] 141	--------	86	197	--------
1920–21	4,551	519	3,071	230	182	[5] 101	89	186	46
1921–22	4,172	394	2,928	176	111	74	92	181	46
1922–23	4,044	424	2,707	176	120	90	77	202	81
1923–24	4,347	469	2,875	277	153	85	89	180	67
1924–25	3,868	589	2,298	186	155	149	106	162	91
1925–26	4,517	626	2,853	322	164	149	110	162	172
1926–27	4,400	653	2,575	321	230	134	118	164	131
1927–28	4,255	485	2,678	312	139	83	87	133	118
1928–29	4,234	384	2,715	252	109	72	65	194	130
1929–30	4,344	705	2,536	281	251	163	100	177	119
1930–31	3,945	611	2,065	420	178	136	118	200	105
1931–32	4,387	638	2,589	299	248	126	77	--------	181
1932–33	4,739	769	2,907	264	236	189	119	--------	135
1933–34 [6]	--------	619	2,330	--------	185	144	102	--------	189

[1] Includes all Russian territory reporting for the years shown.
[2] Total Russian Empire exclusive of the 10 Vistula Provinces of Russian Poland and the Province of Batum in Transcaucasia.
[3] Exclusive of Russian Poland, Lithuania, parts of present Latvia and the Ukraine, and the Provinces of Batum and Elizabetpol in Transcaucasia.
[4] Beginning this year, estimates within present boundaries of the Union of Socialist Soviet Republics, exclusive of Turkestan, Transcaucasia, and the Far East, which territory in 1924–25 produced 26,048,000 bushels.
[5] Production in present boundaries beginning this year, therefore not comparable with earlier years.
[6] Preliminary.

Bureau of Agricultural Economics; official sources and International Institute of Agriculture.

Production figures refer to the year of harvest. Harvests of the Northern Hemisphere countries are combined with those of the Southern Hemisphere which immediately follow; thus, for 1932–33 the crop harvested in the Northern Hemisphere countries in 1932 is combined with the Southern Hemisphere harvest which takes place early in 1933.

TABLE 44.—*Corn: Acreage, yield per acre, and production in specified countries, average 1921–22 to 1925–26, annual 1930–31 to 1933–34*

Country	Acreage					Yield per acre					Production				
	Average, 1921–22 to 1925–26	1930–31	1931–32	1932–33	1933–34 [1]	Average, 1921–22 to 1925–26	1930–31	1931–32	1932–33	1933–34 [1]	Average, 1921–22 to 1925–26	1930–31	1931–32	1932–33	1933–34 [1]
NORTHERN HEMISPHERE															
North America:	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Canada	293	161	132	130	137	44.3	36.2	41.3	38.9	36.9	12,974	5,826	5,449	5,057	5,054
United States	101,275	101,083	105,948	108,668	102,239	27.0	20.4	24.4	26.8	22.8	2,732,439	2,065,273	2,588,509	2,906,873	2,330,237
Mexico	7,519	7,598	8,346	8,013	7,840	11.3	7.1	10.1	9.7	9.6	84,882	54,200	84,195	77,691	75,067
Guatemala	390	418	362	-------	-------	19.9	14.7	14.4	-------	-------	7,772	6,137	5,216	13,240	-------
Total North American countries reporting area and production, all years	109,087	108,842	114,426	116,811	110,216	25.9	19.5	23.4	25.6	21.9	2,830,295	2,125,299	2,678,153	2,989,621	2,410,358
Estimated North American total	110,300	110,600	116,000	118,300	111,700	-------	-------	-------	-------	-------	2,849,000	2,153,000	2,704,000	3,023,000	2,438,000
Europe:															
France	830	833	855	840	839	17.8	26.9	28.8	19.2	19.7	14,754	22,379	24,622	16,115	16,509
Spain	1,167	1,106	1,053	1,102	1,059	22.2	26.1	25.1	24.8	20.8	25,933	28,843	26,388	27,286	22,076
Portugal	762	900	939	-------	-------	15.5	18.6	18.7	-------	-------	11,795	16,722	17,563	15,975	-------
Italy	3,792	3,745	3,450	3,579	3,530	25.0	31.4	22.2	33.2	28.9	94,793	117,560	76,618	118,718	101,881
Austria	147	143	152	165	160	25.1	33.3	32.8	31.5	34.0	3,690	4,756	4,990	5,204	5,445
Czechoslovakia	390	360	344	331	316	26.8	27.2	26.1	36.8	17.5	10,444	9,783	8,965	12,176	5,522
Hungary	2,425	2,605	2,720	2,911	2,862	24.1	21.3	22.0	32.9	24.3	58,353	55,395	59,748	95,744	69,555
Yugoslavia	4,759	5,926	6,168	6,488	6,467	23.0	23.0	20.4	29.1	22.3	109,399	136,393	126,111	188,689	143,913
Bulgaria	1,458	1,689	1,682	1,829	1,762	14.4	18.1	20.8	22.7	23.3	21,021	30,514	34,988	41,511	41,063
Rumania	8,799	10,938	11,749	11,802	11,928	16.0	16.3	21.1	20.0	15.5	140,515	177,940	247,638	235,930	185,032
Poland	197	233	243	240	225	14.9	14.2	16.9	17.3	-------	2,926	3,299	4,099	4,163	-------
Russia, European and Asiatic	5,238	8,686	9,742	9,095	-------	17.4	12.1	18.6	14.8	-------	91,344	105,015	181,092	135,032	188,966
Total European countries reporting area and production, all years	23,767	27,345	28,173	29,047	28,923	20.1	21.3	21.7	25.5	20.4	478,902	583,563	610,068	741,373	590,996
Estimated European total, excluding Russia	25,200	29,100	30,100	30,900	30,800	-------	-------	-------	-------	-------	500,000	611,000	638,000	769,000	619,000

Africa:															
Kenya	105	201	161	164	132	23.9	29.3	16.9	24.8	28.4	2,507	5,892	2,724	4,070	3,754
Morocco	437	649	864	856	-------	8.3	9.2	6.2	5.5	-------	3,629	5,954	5,363	4,677	-------
Egypt	1,988	1,896	2,194	2,043	1,639	34.8	36.9	35.6	37.2	33.2	69,096	69,886	78,201	76,053	54,406
Estimated African total	3,100	4,500	5,000	4,700	3,400	-------	-------	-------	-------	-------	84,000	106,000	110,000	106,000	84,000
Asia:															
India	6,570	7,410	7,059	6,108	-------	12.6	13.2	13.6	14.8	-------	82,482	97,920	96,040	90,520	-------
Japan	141	113	114	-------	-------	25.9	25.5	19.6	-------	-------	3,655	2,887	2,235	-------	-------
Manchuria	[2] 1,457	2,139	2,441	-------	2,723	[2] 37.2	29.2	27.6	-------	27.0	[3] 51,167	62,553	67,417	60,699	73,551
Chosen	231	263	264	270	-------	12.2	12.8	11.8	12.6	-------	2,829	3,366	3,111	3,400	-------
Kwantung	162	230	246	-------	-------	17.1	20.7	21.1	-------	-------	2,771	4,751	5,184	-------	-------
Philippines	1,338	1,277	1,295	1,426	-------	12.4	11.4	10.5	11.4	-------	16,561	14,611	13,565	16,326	-------
Estimated Asiatic total	11,200	13,000	12,900	11,500	12,800	-------	-------	-------	-------	-------	187,000	216,000	218,000	203,000	218,000
Total Northern Hemisphere countries reporting area and production, all years	134,947	138,284	144,954	148,065	140,910	25.1	20.1	23.2	25.7	21.7	3,380,800	2,784,640	3,369,146	3,811,117	3,059,514
Estimated Northern Hemisphere total, excluding Russia	149,800	157,200	164,000	165,400	158,700	-------	-------	-------	-------	-------	3,620,000	3,086,000	3,670,000	4,101,000	3,359,000
SOUTHERN HEMISPHERE															
Brazil	6,980	-------	-------	-------	-------	25.4	-------	-------	-------	-------	177,338	200,140	-------	-------	-------
Chile	62	92	134	164	-------	23.6	29.4	22.0	-------	-------	1,466	2,707	2,951	-------	-------
Uruguay	470	532	483	519	-------	10.5	13.5	11.9	12.2	-------	4,919	7,168	5,759	6,340	-------
Argentina	8,063	11,577	9,518	9,301	[4] 15,814	28.2	36.2	31.4	28.4	-------	227,393	419,661	299,329	263,765	-------
Union of South Africa:															
European	4,456	5,370	6,026	6,074	-------	9.1	8.4	9.1	3.5	-------	40,724	45,196	54,715	21,357	-------
Native	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	16,170	11,975	13,264	8,432	-------
Southern Rhodesia [5]	223	273	253	253	-------	18.3	18.8	26.6	16.3	-------	4,079	5,131	6,724	4,115	-------
Java and Madura	3,983	4,947	4,780	4,946	5,125	14.6	15.9	15.7	15.1	15.9	57,975	78,850	75,216	74,891	81,493
Australia	326	293	269	-------	-------	26.5	27.4	26.3	-------	-------	8,641	8,026	7,062	-------	-------
Total Southern Hemisphere countries reporting area and production, all years through 1932–33	17,195	22,699	21,060	21,093	-------	19.5	24.5	21.0	17.6	-------	335,090	556,006	441,743	370,468	-------
Estimated Southern Hemisphere total	26,000	35,100	33,100	33,000	-------	-------	-------	-------	-------	-------	569,000	859,000	717,000	638,000	-------
Total Northern and Southern Hemisphere countries reporting area and production, all years through 1932–33	166,153	179,501	185,481	187,153	-------	23.6	19.9	22.2	23.7	-------	3,915,661	3,570,811	4,114,159	4,435,703	-------
Estimated world total, excluding Russia	175,800	192,300	197,100	198,400	-------	-------	-------	-------	-------	-------	4,189,000	3,945,000	4,387,000	4,739,000	-------

[1] Preliminary. [2] 2-year average. [3] 3-year average. [4] Planted acreage. The area lost is estimated at about 3,700,000 acres. [5] European cultivation only.

Bureau of Agricultural Economics; official sources and International Institute of Agriculture.

Both acreage and production figures refer to the year of harvest. Harvests of the Northern Hemisphere countries are combined with those of the Southern Hemisphere which immediately follow; thus for 1932–33 the crop harvested in the Northern Hemisphere in 1932 is combined with the Southern Hemisphere harvest which takes place early in 1933.

TABLE 45.—*Corn: Monthly marketings by farmers, as reported by about 3,500, mills and elevators, United States, 1923–24 to 1932–33*

Year	Percentage of receipts during—												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Year
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
1923–24	5.6	10.4	12.3	12.9	13.3	7.4	6.1	5.9	6.0	6.8	7.2	6.1	100.0
1924–25	7.0	11.1	13.0	13.6	9.5	8.1	6.3	7.8	4.3	6.6	6.2	6.5	100.0
1925–26	5.9	9.3	14.6	12.1	10.4	8.5	5.3	7.1	8.2	5.1	7.6	5.9	100.0
1926–27	10.1	9.1	12.9	11.7	10.8	6.9	4.8	6.1	9.1	5.7	6.2	6.6	100.0
1927–28	6.2	8.6	15.5	13.8	11.7	8.9	5.4	6.6	5.4	5.1	6.5	6.3	100.0
1928–29	6.6	12.5	16.7	12.9	11.5	7.4	3.8	4.3	7.3	5.8	5.8	5.4	100.0
1929–30	6.9	9.3	13.4	10.9	10.6	7.4	7.1	6.9	6.3	6.6	7.0	7.6	100.0
1930–31	7.7	10.5	14.0	11.0	10.2	8.2	7.0	5.8	6.5	6.5	7.3	5.3	100.0
1931–32	7.6	9.9	11.2	10.2	10.4	7.6	7.4	6.4	5.4	6.2	8.6	9.1	100.0
1932–33	8.3	8.1	8.9	8.0	7.4	5.1	8.4	9.1	10.3	12.4	6.2	7.8	100.0

Bureau of Agricultural Economics.

TABLE 46.—*Corn: United States, production, 1925-33; stocks on farms, quarterly, 1926–34*

Year	Production for grain	Year	Stocks on farms [1]			
			Jan. 1	Apr. 1	July 1	Oct. 1
	1,000 bushels		*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1925	2,413,364	1926	----------	980,489	535,978	262,910
1926	2,133,404	1927	1,459,153	870,624	444,058	191,679
1927	2,249,926	1928	1,446,780	715,281	291,791	87,531
1928	2,282,938	1929	1,435,316	780,896	396,267	146,719
1929	2,140,215	1930	1,389,764	750,223	349,481	131,845
1930	1,733,429	1931	1,118,424	625,086	312,389	160,460
1931	2,229,088	1932	1,556,349	913,666	527,374	250,978
1932	2,507,303	1933	1,807,338	1,123,809	627,998	316,108
1933	2,025,015	1934	1,422,556	834,337	----------	----------

[1] Revised data.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 47.—*Corn, shelled: Classification of receipts graded by licensed inspectors, all inspection points, total of all classes under each grade, 1923–24 to 1932–33*

Year beginning November	Grade							Total
	No. 1	No. 2	No. 3	No. 4	No. 5	N. 6	Sample	
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
1923–24	3,038	59,592	111,932	69,365	35,905	15,410	10,742	305,984
1924–25	7,883	80,883	56,542	34,431	31,370	17,252	12,345	240,706
1925–26	3,358	59,985	62,757	51,092	48,348	40,116	31,473	297,129
1926–27	1,616	34,390	57,931	48,217	50,195	46,180	31,171	269,700
1927–28	9,682	87,801	78,352	47,890	34,638	27,553	29,006	314,922
1928–29	25,809	92,285	73,331	93,367	40,594	10,400	7,247	343,033
1929–30	26,394	85,038	49,806	50,916	39,995	19,475	16,580	288,204
1930–31	18,176	67,781	70,928	45,629	14,745	5,262	3,745	226,266
1931–32	15,469	91,136	53,076	22,756	3,987	3,159	2,465	192,048
1932–33	12,217	129,825	63,005	29,343	6,487	7,218	6,632	254,727

Bureau of Agricultural Economics.

TABLE 48.—*Corn: Commercial stocks, 1926–27 to 1933–34*

DOMESTIC CORN IN UNITED STATES [1]

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1926–27	-------	-------	-------	36, 019	40, 670	47, 515	49, 759	39, 010	31, 224	36, 268	31, 782	23, 324
1927–28	24, 913	21, 661	20, 254	28, 741	30, 717	44, 786	48, 273	36, 835	27, 497	17, 650	12, 304	9, 768
1928–29	6, 894	2, 032	6, 353	18, 565	28, 797	36, 927	37, 744	28, 863	15, 951	13, 740	9, 086	6, 340
1929–30	4, 421	3, 639	2, 982	8, 228	16, 079	24, 944	25, 671	21, 073	11, 463	7, 049	3, 421	4, 220
1930–31	4, 710	4, 550	7, 332	17, 190	17, 383	20, 127	22, 174	19, 697	12, 337	7, 279	8, 363	9, 066
1931–32	5, 587	7, 341	9, 803	12, 664	14, 176	18, 528	22, 693	22, 032	20, 708	16, 117	11, 144	14, 739
1932–33	18, 705	27, 973	26, 537	30, 633	33, 648	34, 914	36, 151	31, 958	38, 780	48, 618	63, 274	57, 764
1933–34	59, 791	61, 355	65, 053	-------	-------	-------	-------	-------	-------	-------	-------	-------

UNITED STATES CORN IN CANADA [2]

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1926–27	-------	-------	-------	2, 147	1, 715	1, 788	1, 403	1, 781	1, 452	1, 184	1, 706	1, 188
1927–28	2, 010	1, 994	2, 263	1, 891	1, 598	1, 312	976	626	1, 634	1, 337	818	510
1928–29	534	252	268	580	737	601	356	1, 759	1, 602	911	746	480
1929–30	987	847	375	253	180	152	120	428	745	697	135	147
1930–31	928	750	723	571	481	423	388	476	995	176	195	557
1931–32	500	1, 143	1, 106	918	884	872	843	1, 051	992	817	549	759
1932–33	2, 826	3, 399	4, 211	3, 799	3, 017	2, 221	1, 562	1, 387	2, 809	3, 326	7, 116	7, 076
1933–34	7, 707	10, 065	10, 830	-------	-------	-------	-------	-------	-------	-------	-------	-------

[1] Includes domestic corn in store in public and private elevators in 41 markets and corn afloat in vessels or barges in harbors of lake and seaboard ports. Does not include corn in transit either by rail or water, stocks in mills, or mill elevators attached to mills, or private stocks of corn intended for local use.

[2] Includes United States corn in store at 15 Canadian points or afloat in vessels or barges in the harbors of lake and seaboard ports. Does not include corn in transit to Canadian ports.

Bureau of Agricultural Economics; compiled from weekly reports to the grain, hay, and feed market news service.

Data are for stocks on the Saturday nearest the first day of the month.

TABLE 49.—*Corn: Supply and distribution in continental United States, 1926–27 to 1933–34*

Year beginning October	Supply						Distribution		
	Production	Stocks on farms Oct. 1	Farm supply Oct. 1	Bradstreet's visible Oct. 1	Total stocks Oct. 1	Total supply Oct. 1	Net exports [1]	Stocks end of year	Disappearance
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1926–27	2, 574, 511	262, 910	2, 837, 421	18, 999	281, 909	2, 856, 420	14, 341	216, 789	2, 625, 290
1927–28	2, 677, 671	191, 679	2, 869, 350	25, 110	216, 789	2, 894, 460	17, 619	94, 645	2, 782, 196
1928–29	2, 714, 535	87, 531	2, 802, 066	7, 114	94, 645	2, 809, 180	41, 399	151, 357	2, 616, 424
1929–30	2, 535, 546	146, 719	2, 682, 265	4, 638	151, 357	2, 686, 903	8, 119	136, 778	2, 542, 006
1930–31	2, 065, 273	131, 845	2, 197, 118	4, 933	136, 778	2, 202, 051	1, 733	166, 052	2, 034, 266
1931–32	2, 588, 509	160, 460	2, 748, 969	5, 592	166, 052	2, 754, 561	4, 058	270, 523	2, 479, 980
1932–33	2, 906, 873	250, 978	3, 157, 851	19, 545	270, 523	3, 177, 396	8, 713	375, 778	2, 792, 905
1933–34	2, 330, 237	316, 108	2, 646, 345	59, 670	375, 778	2, 706, 015	--------	--------	--------

[1] Includes corn meal.

Bureau of Agricultural Economics.

TABLE 50.—*Corn, including corn meal in terms of grain: International trade, average 1925–26 to 1929–30, annual 1929–30 to 1932–33*

Country	Year beginning July									
	Average, 1925–26 to 1929–30		1929–30		1930–31		1931–32		1932–33 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Argentina	220, 588	0	168, 585	0	274, 044	0	386, 849	0	206, 902	0
Rumania	30, 906	[2] 21	[3] 31, 030	------	38, 301	1	54, 363	3	[3] 67, 919	------
United States	23, 233	1, 637	10, 281	496	3, 317	1, 747	3, 969	386	8, 775	195
Union of South Africa	19, 446	376	18, 361	52	21, 880	30	10, 998	27	16, 786	25
Yugoslavia	[4] 8, 534	------	18, 436	------	14, 923	------	3, 467	------	16, 369	------
Dutch East Indies [5]	4, 876	13	6, 832	18	4, 728	18	6, 555	20	[6] 4, 225	[6] 11
Hungary	4, 043	508	6, 109	350	628	3, 275	123	2, 665	5, 386	894
Bulgaria	3, 828	------	5, 610	------	7, 744	------	4, 721	------	5, 785	------
Russia	3, 674	0	1, 352	0	2, 478	0	10, 897	0	7, 669	0
Indo-China	3, 554	0	[3] 5, 400	[3] 0	[3] 5, 602	[3] 0	4, 397	0	8, 486	0
Egypt	1, 786	276	77	82	14	274	15	497	369	24
China [5]	1, 040	0	2, 022	0	1, 063	0	1, 560	0	533	8
Uruguay [5]	561	[4] 406	394	282	632	225	310	------	2	------
British India	227	0	6	0	2	0	4	0	4	0
Total	326, 296	3, 237	274, 495	1, 280	375, 356	5, 570	488, 228	3, 598	349, 210	1, 157
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	2, 512	71, 650	2, 313	68, 763	2, 595	83, 280	3, 183	114, 684	419	110, 307
Netherlands	738	44, 523	1, 067	41, 798	863	48, 785	518	69, 910	223	58, 947
Germany	23	42, 826	2	31, 578	2	17, 320	0	29, 723	1	17, 744
France	69	27, 349	89	29, 929	126	36, 788	124	46, 513	16	40, 425
Belgium	1, 080	24, 268	1, 017	21, 892	1, 589	27, 224	2, 992	35, 421	2, 318	32, 094
Italy	42	23, 942	26	27, 240	16	25, 256	12	34, 750	1, 690	9, 718
Denmark	0	18, 676	0	9, 873	0	14, 856	0	40, 162	0	28, 821
Irish Free State	124	16, 159	61	16, 607	63	20, 679	44	28, 041	------	16, 446
Canada	58	13, 645	34	14, 010	42	9, 819	113	8, 701	181	7, 442
Spain	0	13, 003	0	9, 915	0	5, 176	2	10, 617	0	5, 499
Czechoslovakia	5	12, 088	2	9, 035	3	16, 868	2	24, 818	1	6, 113
Austria	20	6, 593	30	7, 160	17	8, 214	6	14, 299	4	17, 732
Sweden	------	5, 112	------	3, 853	------	8, 146	------	13, 535	------	9, 373
Switzerland	0	5, 099	0	4, 297	2	5, 202	6	7, 117	3	5, 070
Norway	------	4, 588	------	4, 575	------	6, 101	------	7, 556	------	6, 276
Mexico [5]	[4] 3	[4] 2, 108	------	311	0	3, 122	0	737	0	------
Poland	22	2, 008	8	636	0	862	1	421	0	183
Cuba	0	1, 974	0	610	0	190	0	8	0	------
Japan	0	[4] 1, 702	0	2, 532	0	2, 776	0	3, 846	0	78
Greece	0	886	0	380	0	540	0	6, 105	0	1, 114
Australia	91	602	3	81	2	4	3	0	------	------
Tunis	17	424	13	1	15	647	0	634	1	2
Algeria	14	214	11	61	4	183	27	427	7	229
Finland	0	190	0	262	0	346	0	941	0	1, 668
Total	4, 818	339, 629	4, 676	305, 399	5, 339	342, 384	7, 033	498, 966	4, 864	375, 281

[1] Preliminary.
[2] 1 year only.
[3] Monthly Crop Report and Agricultural Statistics.
[4] 4-year average.
[5] Calendar year.
[6] Java and Madura only.

Bureau of Agricultural Economics; official sources except where otherwise noted.
Maicena or maizena is included with corn and corn meal.

TABLE 51.—*Corn: Average price per bushel received by producers, United States, 1924–25 to 1933–34*

Year	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	108.9	99.6	105.6	112.0	114.5	112.1	103.8	107.5	111.0	104.4	106.5	98.8	107.3
1925–26	83.0	74.6	70.7	69.6	68.5	66.6	65.7	67.1	68.6	71.5	79.5	76.2	71.4
1926–27	74.5	66.0	64.5	64.3	66.5	65.2	65.6	73.0	88.9	92.4	97.7	95.3	74.1
1927–28	87.6	73.7	75.1	75.2	79.0	86.2	91.9	102.5	102.2	102.4	98.2	95.1	85.3
1928–29	84.7	75.4	76.1	80.2	86.8	88.7	87.5	86.2	86.9	91.2	95.9	97.2	84.5
1929–30	91.9	81.0	78.0	77.3	77.4	74.5	78.3	77.7	79.0	77.1	90.0	91.7	80.9
1930–31	81.9	66.3	64.9	61.7	58.6	57.5	57.7	56.3	53.8	54.0	50.8	43.2	60.2
1931–32	33.4	36.6	34.5	33.7	32.4	32.2	31.4	30.1	29.4	29.9	30.2	28.0	32.1
1932–33	21.6	19.4	18.8	19.1	19.4	20.6	28.2	38.9	40.2	55.4	48.8	46.5	32.8
1933–34	38.8	40.6	42.0	------	------	------	------	------	------	------	------	------	---------

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; yearly price obtained by weighting monthly prices by monthly marketings.

TABLE 52.—*Corn: Weighted average price* [1] *per bushel of reported cash sales, Chicago, Kansas City, and 6 markets combined, 1924–25 to 1933–34*

Grade, market, and year	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Weighted average
No. 3 Yellow, Chicago:	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	111	120	124	122	117	105	115	113	108	102	91	82	106
1925–26	83	76	79	75	72	71	71	70	78	80	79	77	75
1926–27	71	75	74	73	68	71	87	99	102	109	97	84	87
1927–28	84	86	89	95	99	106	108	103	106	102	100	96	101
1928–29	84	83	93	94	94	90	87	91	99	101	101	95	92
1929–30	88	88	85	82	80	82	79	79	82	99	94	82	83
1930–31	71	69	65	61	60	58	56	58	57	46	42	38	60
1931–32	43	37	37	34	33	32	31	30	32	32	30	26	36
1932–33	25	23	24	23	26	34	42	43	56	51	47	40	35
1933–34	44	47	------	------	------	------	------	------	------	------	------	------	---------
No. 3 Yellow, Kansas City:													
1924–25	107	115	121	115	111	101	110	108	108	102	91	82	112
1925–26	75	74	75	70	67	69	71	72	81	83	80	77	74
1926–27	74	75	74	72	73	73	91	97	103	105	96	83	88
1927–28	79	78	81	86	91	97	105	102	100	94	94	86	85
1928–29	82	79	87	87	88	85	85	88	93	99	99	92	85
1929–30	87	84	82	78	76	80	78	80	80	92	89	82	80
1930–31	69	66	59	54	54	53	52	52	53	45	46	40	55
1931–32	46	39	39	36	34	34	34	33	35	33	29	24	37
1932–33	24	22	23	22	26	33	39	40	52	50	44	38	38
1933–34	43	43	------	------	------	------	------	------	------	------	------	------	---------
6 markets, all classes and grades:[2]													
1924–25	108.3	114.4	112.9	108.6	103.5	99.0	111.9	109.7	105.3	101.3	89.1	80.8	106.0
1925–26	71.0	68.3	69.5	63.2	64.6	66.4	68.0	66.9	76.3	78.3	76.5	73.2	69.0
1926–27	67.3	65.9	65.2	62.7	60.9	67.0	83.0	91.5	96.7	104.2	92.2	79.9	75.8
1927–28	78.7	77.0	78.6	84.1	89.6	98.2	104.0	100.8	102.7	96.8	97.5	89.3	89.2
1928–29	79.8	78.4	87.1	89.5	89.0	86.9	84.6	89.7	98.1	99.9	100.0	93.8	88.5
1929–30	81.0	79.1	77.7	75.9	73.5	80.2	78.5	77.8	80.6	97.6	93.2	80.3	80.3
1930–31	67.8	64.1	61.0	57.2	56.8	56.3	54.4	55.3	56.9	46.7	42.4	38.0	56.9
1931–32	43.5	37.1	37.0	34.2	33.1	32.6	31.9	30.7	32.4	32.1	29.8	25.6	33.2
1932–33	24.8	22.6	23.1	22.4	25.4	33.6	40.7	41.7	54.8	50.4	46.7	39.9	37.8
1933–34	43.6	45.3	------	------	------	------	------	------	------	------	------	------	---------

[1] Average of daily prices weighted by car-lot sales.

[2] Compiled from daily trade papers of markets named. The markets are Chicago, St. Louis, Omaha, Kansas City, Minneapolis, and Cincinnati (not included since November 1928). The prices in this section of the table are comparable with prices paid to producers in that the latter are averages of the several prices reported which cover all classes and grades sold by producers.

Bureau of Agricultural Economics; compiled from Chicago Daily Tribune Bulletin and Kansas City Grain Market Review.

TABLE 53.—*Corn, yellow, La Plata: Spot price per bushel of 56 pounds at Buenos Aires and Liverpool, 1924–25 to 1933–34*

BUENOS AIRES

Year	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	106	98	111	108	96	92	100	92	92	96	90	83	97
1925–26	84	86	79	73	66	71	68	68	68	69	65	60	72
1926–27	55	55	60	63	63	62	66	69	69	76	77	76	66
1927–28	76	83	90	98	102	89	90	98	90	85	86	95	90
1928–29	97	93	98	96	90	85	79	81	90	87	87	85	89
1929–30	75	72	65	62	59	60	59	56	54	56	50	43	59
1930–31	34	33	29	31	35	33	30	30	30	26	24	25	30
1931–32	32	28	27	30	33	31	29	30	31	32	32	30	30
1932–33	28	26	29	28	27	27	30	31	37	35	37	34	31
1933–34	38	37	39										

LIVERPOOL

Year	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Average
1924–25	121	123	131	129	114	115	131	128	127	138	120	103	123
1925–26	107	110	98	91	89	94	91	87	100	99	90	93	96
1926–27	95	92	89	93	88	88	94	91	91	98	97	96	93
1927–28	97	104	110	119	127	129	127	125	130	119	106	115	117
1928–29	123	120	126	127	124	121	107	104	117	113	107	103	116
1929–30	96	89	83	79	75	91	85	76	84	90	77	63	82
1930–31	52	54	48	49	58	61	57	50	47	44	41	39	50
1931–32	44	37	39	42	46	47	46	42	43	43	42	39	42
1932–33	37	37	41	40	40	40	44	44	50	46	47	46	43
1933–34	56	63	59	56									

Bureau of Agricultural Economics. Compiled as follows: Buenos Aires, Boletin Oficial de la Bolso de Comercio de Buenos Aires, averages of daily quotations, converted at monthly average rates of exchange as given in Federal Reserve Bulletin; Liverpool, Broomhall's Corn Trade News, averages of Tuesday quotations through Feb. 19, 1929. Beginning Feb. 27, 1929, Wednesday quotations were used. Converted at monthly average rates of exchange as given in Federal Reserve Bulletin, except for period January 1926 to August 1931, when par of exchange was used.

TABLE 54.—*Corn: Volume of trading in futures at contract markets, by markets and by crop years, 1924–25 to 1932–33, and monthly for 1933*

Year and month	Chicago Board of Trade	Chicago Open Board	Kansas City	St. Louis	Milwaukee	Minneapolis [1]	Omaha [2]
	Million bushels	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*
1924–25	6, 363. 1	124. 6	282. 6	52. 4	18. 3		
1925–26	3, 862. 7	96. 4	161. 1	18. 4	14. 5		
1926–27	5, 981. 6	158. 7	200. 7	24. 4	28. 5		
1927–28	6, 588. 9	175. 0	290. 1	22. 5	38. 7		
1928–29	4, 924. 4	144. 4	247. 1	11. 9	32. 7		
1929–30	3, 799. 1	94. 9	208. 1	4. 7	27. 1		0. 2
1930–31	4, 318. 4	173. 0	208. 9	3. 5	23. 9	9. 9	. 9
1931–32	1, 795. 6	42. 9	56. 9	1. 1	8. 7		1. 0
1932–33	3, 351. 4	55. 4	165. 0		13. 8		
1933							
January	69. 1	2. 3	2. 4		. 3		
February	47. 3	1. 1	1. 7		. 2		
March	80. 1	1. 5	4. 6		. 5		
April	272. 8	5. 0	12. 1		. 9		
May	515. 4	9. 3	17. 1		2. 3		
June	595. 3	7. 3	25. 3		2. 9		
July	748. 5	9. 2	55. 2		2. 6		
August	265. 8	5. 1	16. 2		1. 0		
September	187. 8	4. 3	9. 0		. 9		
October	336. 8	5. 6	15. 4		1. 3		
November	291. 3	3. 6	13. 7		1. 3		
December	198. 3	3. 1	10. 0		. 8		

[1] Trading in corn futures at Minneapolis began Jan. 30, 1922, was discontinued July 31, 1923, and resumed Jan. 31, 1931.
[2] Trading at Omaha began June 16, 1930, and was suspended Dec. 7, 1932.

Grain Futures Administration.

TABLE 55.—*Corn: Volume of trading in futures at all contract markets, by months, 1924–25 to 1933–34*

Month	1924–25	1925–26	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34
	Million bushels	*Million bushels*	*Million bushels*	*Million bushesl*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*
November	557	317	383	473	457	261	418	361	145	310
December	707	514	395	681	420	199	649	209	99	212
January	710	302	261	511	690	196	600	119	74	--------
February	677	236	288	698	373	252	474	156	50	--------
March	810	317	429	733	416	328	370	142	87	--------
April	670	292	313	745	466	283	380	204	291	--------
May	510	237	692	699	526	290	346	110	544	--------
June	566	343	921	567	475	322	265	102	631	--------
July	463	448	575	553	520	498	381	98	816	--------
August	394	439	713	616	453	611	373	178	288	--------
September	442	368	836	372	296	433	238	122	202	--------
October	335	340	588	467	269	461	246	106	359	--------
Total	6,841	4,153	6,394	7,115	5,361	4,134	4,740	1,907	3,586	--------

Grain Futures Administration.

TABLE 56.—*Corn: Wet-process grindings, 1918–19 to 1933–34*

Year	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Total
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1918–19	6,398	6,029	6,247	4,940	4,602	5,119	6,023	6,035	4,418	4,619	6,306	6,377	67,113
1919–20	5,207	5,044	7,282	5,847	7,051	3,875	5,509	6,367	6,495	6,001	4,192	3,679	66,549
1920–21	2,292	2,069	2,934	3,683	4,163	3,456	4,887	4,577	4,195	5,772	6,092	6,569	50,689
1921–22	6,174	6,001	5,179	5,946	6,685	4,271	4,705	5,323	5,294	5,650	6,108	6,733	68,069
1922–23	6,403	4,557	5,530	5,336	5,946	5,270	6,084	5,278	4,080	5,390	5,577	6,424	65,875
1923–24	5,576	5,668	6,757	7,152	7,835	6,437	5,027	5,621	5,835	6,433	6,368	6,926	75,635
1924–25	5,433	5,520	6,751	6,199	5,672	5,240	4,983	5,498	4,430	5,567	5,902	7,037	68,232
1925–26	6,497	6,488	7,843	7,218	8,052	6,100	5,974	6,733	6,749	7,289	6,800	7,604	83,347
1926–27	6,404	5,455	6,618	6,511	7,336	6,851	6,365	7,299	6,727	7,309	7,561	8,612	83,048
1927–28	8,064	6,301	8,330	8,339	9,244	8,285	6,921	6,428	5,833	5,192	6,541	7,725	87,203
1928–29	7,535	6,550	8,364	8,719	7,085	6,044	6,338	6,696	6,560	7,673	7,913	8,721	88,198
1929–30	6,453	6,054	7,622	6,568	6,065	6,615	6,623	6,100	6,103	6,561	6,473	6,253	77,490
1930–31	5,435	5,241	5,990	5,575	5,441	5,492	5,580	5,738	5,168	4,664	5,912	6,318	66,554
1931–32	6,348	4,630	5,130	5,344	5,045	4,687	4,921	4,552	4,343	5,165	5,981	5,856	62,002
1932–33	5,569	5,167	5,758	5,022	5,830	7,116	8,863	5,473	6,511	5,845	4,475	5,761	71,390
1933–34	8,694	3,924	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

Bureau of Agricultural Economics.
Compiled from reports of the Corn Refiners' Statistical Bureau and the Corn Industries Research Foundation.

TABLE 57.—*Corn: Sales of certain products of the wet-process industry, 1927–33*

Calendar year	Corn-starch	Corn sugar	Corn sirup mixed and unmixed	Dex-trines	Corn oil		Feed	
					Crude	Refined	Gluten feed and meal	Corn-oil meal
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 short tons*	*1,000 short tons*
1927	906,476	896,739	1,064,821	103,340	39,524	67,511	648	38
1928	838,605	968,601	1,106,957	110,169	43,507	74,153	659	40
1929	879,560	894,986	1,111,153	114,486	53,661	78,913	634	27
1930	710,525	849,315	1,025,970	89,720	40,004	77,924	576	25
1931	635,974	802,052	929,342	79,136	41,076	71,537	479	21
1932	529,329	776,854	794,926	62,122	35,127	76,437	542	18
1933	741,855	837,160	1,000,941	86,222	37,246	81,153	508	23

Bureau of Agricultural Economics; compiled from reports of the Corn Refiners' Statistical Bureau.

TABLE 58.—*Oats: Acreage, production, value, foreign trade, etc., United States' 1900–1933*

Year	Acreage harvested	Average yield per acre	Production	Price per bushel received by producers, Dec. 1 [1]	Farm value, basis Dec. 1 price	Price per bushel at Chicago, year beginning Aug. 1 [2]	Foreign trade, including meal, year beginning July [3]			
							Domestic exports	Imports	Net exports [4]	
									Total	Percentage of production
	1,000 acres	*Bushels*	*1,000 bushels*	*Cents*	*1,000 dollars*	*Cents*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Percent*
1900	30, 290	30. 2	913, 800	25. 4	232, 074	26	42, 269	32	42, 237	4. 6
1901	29, 894	26. 0	778, 392	39. 7	308, 796	43	13, 278	39	13, 240	1. 7
1902	30, 578	34. 5	1, 053, 489	30. 6	322, 423	34	8, 382	150	8, 233	. 8
1903	30, 866	28. 2	869, 350	34. 0	295, 232	38	1, 961	184	1, 857	. 2
1904	31, 353	32. 2	1, 008, 931	31. 1	313, 488	32	8, 395	56	8, 339	. 8
1905	32, 072	34. 0	1, 090, 236	28. 9	314, 868	31	48, 435	40	48, 395	4. 4
1906	33, 353	31. 0	1, 035, 576	31. 9	329, 853	37	6, 386	91	6, 379	. 6
1907	33, 641	23. 9	805, 108	44. 5	358, 421	50	2, 519	383	2, 195	. 3
1908	34, 006	25. 0	850, 540	47. 3	402, 010	52	2, 334	6, 692	[5] 4, 252	
1909	*35, 159*	*28. 6*	*1, 007, 143*							
1909	35, 159	30. 4	1, 068, 289	40. 6	433, 869	42	2, 549	1, 063	1, 704	. 2
1910	37, 548	31. 6	1, 186, 341	34. 4	408, 388	33	3, 846	140	3, 707	. 3
1911	37, 763	24. 4	922, 298	45. 0	414, 663	50	2, 678	2, 660	30	(6)
1912	37, 917	37. 4	1, 418, 337	31. 9	452, 469	35	36, 455	765	35, 695	2. 5
1913	38, 399	29. 2	1, 121, 768	39. 2	439, 596	40	2, 749	22, 333	[5] 18,858	
1914	38, 442	29. 7	1, 141, 060	43. 8	499, 431	50	100, 609	670	100, 158	8. 8
1915	40, 996	37. 8	1, 549, 030	36. 1	559, 506	41	98, 960	720	98, 648	6. 4
1916	41, 527	30. 1	1, 251, 837	52. 4	655, 928	54	95, 106	841	94, 348	7. 5
1917	43, 553	36. 6	1, 592, 740	66. 6	1, 061, 474	71	125, 091	2, 915	122, 273	7. 7
1918	44, 349	34. 7	1, 538, 124	70. 9	1, 090, 322	70	109, 005	838	108, 167	7. 0
1919	*37, 991*	*27. 8*	*1, 055, 183*							
1919	39, 601	27. 9	1, 106, 603	76. 7	848, 534	80	43, 436	6, 077	37, 365	3. 4
1920	42, 732	33. 8	1, 444, 291	53. 8	776, 913	51	9, 391	3, 827	5, 831	. 4
1921	45, 539	23. 0	1, 045, 270	32. 2	336, 603	35	21, 237	1, 824	19, 422	1. 9
1922	40, 324	28. 5	1, 147, 905	37. 4	429, 354	41	25, 413	340	25, 087	2. 2
1923	40, 245	30. 5	1, 227, 184	40. 7	499, 701	45	8, 796	4, 271	4, 550	. 4
1924	*37, 650*	*34. 7*	*1, 304, 599*							
1924	41, 857	34. 0	1, 424, 422	47. 8	680, 378	50	16, 777	3, 067	13, 926	1. 0
1925	44, 240	31. 9	1, 410, 336	38. 8	547, 212	41	39, 687	212	39, 565	2. 8
1926	42, 854	26. 6	1, 141, 941	40. 1	457, 766	43	15, 041	135	14, 988	1. 3
1927	40, 350	27. 1	1, 093, 097	47. 1	515, 277	55	9, 823	233	9, 611	. 9
1928	40, 128	32. 9	1, 318, 977	40. 7	537, 186	44	16, 251	426	15, 825	1. 2
1929	*33, 466*	*29. 7*	*992, 747*							
1929	38, 148	29. 3	1, 118, 414	41. 9	468, 369	44	7, 966	175	7, 680	. 7
1930	39, 653	32. 2	1, 277, 379	32. 2	411, 070	35	3, 123	659	2, 464	. 2
1931	40, 084	28. 1	1, 126, 913	21. 3	239, 953	22	4, 437	85	4, 352	. 4
1932	41, 425	30. 1	1, 246, 658	15. 7	195, 290	22	5, 361	28	5, 333	. 4
1933 [7]	36, 541	19. 8	722, 485	31. 8	229, 695					

[1] Beginning with 1919 prices are weighted average prices for crop marketing season.
[2] From Chicago Daily Trade Bulletin, averages of the daily cash quotations of No. 3 white oats weighted by car-lot sales.
[3] Compiled from Commerce and Navigation of the United States, 1900–1917; Foreign Commerce and Navigation of the United States, 1918; Monthly Summary of Foreign Commerce of the United States, June issues, 1919–26; January and June issues, 1927–33; and official records of the Bureau of Foreign and Domestic Commerce. Oats—general imports, 1900–1933; oatmeal—general imports, 1900–1909; imports for consumption, 1910–33.
[4] Total exports (domestic plus foreign) minus total imports.
[5] Net imports. Total imports minus total exports (domestic plus foreign).
[6] Less than 0.05 percent.
[7] Preliminary.

Bureau of Agricultural Economics.
Production figures are estimates of the Crop Reporting Board, revised, 1919–28. See introductory text; italic figures are census returns. See 1927 Yearbook, p. 788, for data for earlier years.

TABLE 59.—*Oats: Acreage, yield, production, and weighted average price per bushel received by producers, by States, averages, and annual 1932 and 1933*

State and division	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1926–30	1932	1933 [1]	Average, 1921–30	1932	1933 [1]	Average, 1926–30	1932	1933 [1]	1932	1933 [2]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Cents*	*Cents*
Maine	124	130	130	37.1	38.0	40.0	4,600	4,940	5,200	33	40
New Hampshire	8	8	6	38.7	39.0	38.0	322	312	228	37	54
Vermont	62	62	59	30.8	33.0	27.0	1,915	2,046	1,593	33	48
Massachusetts	6	5	5	32.0	33.0	30.0	185	165	150	37	56
Rhode Island	2	2	2	32.7	34.0	36.0	71	68	72	38	54
Connecticut	9	9	9	29.5	31.0	25.0	253	279	225	39	54
New York	870	863	820	30.5	31.0	20.5	27,596	26,753	16,810	29	44
New Jersey	42	41	43	27.2	26.0	27.0	1,233	1,066	1,161	30	44
Pennsylvania	976	944	925	30.0	25.5	22.5	30,109	24,072	20,812	29	43
North Atlantic	2,099	2,064	1,999	30.6	28.9	23.1	66,285	59,701	46,251	29.6	43.4
Ohio	1,917	1,591	1,273	34.1	28.5	20.5	67,502	45,344	26,096	18	34
Indiana	2,013	1,965	1,651	28.8	30.0	17.0	61,215	58,950	28,067	14	30
Illinois	4,298	4,439	4,039	31.8	37.5	19.5	134,629	166,462	78,760	13	30
Michigan	1,438	1,335	1,121	31.0	27.0	21.0	46,278	36,045	23,541	20	35
Wisconsin	2,473	2,533	2,457	35.5	35.0	26.0	88,761	88,655	63,882	20	33
Minnesota	4,329	4,575	4,484	33.6	36.0	21.5	138,627	164,700	96,406	13	27
Iowa	6,197	6,181	6,119	35.2	35.5	22.0	216,206	219,426	134,618	13	27
Missouri	1,666	1,939	1,764	19.4	19.0	18.5	33,027	36,841	32,634	18	32
North Dakota	1,937	2,004	1,703	23.3	21.0	13.0	41,327	42,084	22,139	9.2	24
South Dakota	2,398	2,321	696	27.7	32.5	7.5	60,005	75,432	5,220	10	27
Nebraska	2,476	2,473	2,226	27.0	30.0	10.5	67,398	74,190	23,373	13	26
Kansas	1,322	1,608	1,528	21.6	21.5	17.0	29,846	34,572	25,976	16	31
North Central	32,464	32,964	29,061	30.6	31.6	19.3	984,821	1,042,701	560,712	14.0	29.2
Delaware	3	4	3	27.6	26.0	29.0	84	104	87	32	48
Maryland	51	57	50	28.0	25.0	22.0	1,463	1,425	1,100	30	41
Virginia	142	166	168	19.3	19.5	20.0	2,892	3,237	3,360	31	44
West Virginia	147	138	124	23.5	22.0	19.0	3,478	3,036	2,356	32	44
North Carolina	172	205	205	16.6	21.3	19.4	2,832	4,366	3,977	36	55
South Carolina	357	389	370	21.7	20.5	19.5	7,925	7,974	7,215	34	62
Georgia	281	378	295	18.1	18.5	18.0	5,537	6,993	5,310	37	63
Florida	9	7	7	13.3	11.5	11.5	123	80	80	39	60
South Atlantic	1,162	1,344	1,222	20.1	20.2	19.2	24,334	27,215	23,485	34.3	55.6
Kentucky	173	162	122	17.0	14.5	16.0	2,985	2,349	1,952	26	42
Tennessee	118	124	109	16.6	15.4	16.0	1,993	1,910	1,744	29	45
Alabama	92	99	69	17.4	15.0	16.0	1,631	1,485	1,104	34	57
Mississippi	28	32	21	19.4	16.0	16.0	574	512	336	33	56
Arkansas	113	114	103	18.8	14.0	16.0	2,115	1,596	1,648	24	42
Louisiana	13	20	16	22.7	15.0	16.3	316	300	261	30	45
Oklahoma	1,079	1,334	1,161	19.8	18.0	18.5	22,829	24,012	21,478	14	36
Texas	1,437	1,749	1,189	23.8	24.0	17.5	36,686	41,976	20,808	14	37
South Central	3,055	3,634	2,790	21.2	20.4	17.7	69,129	74,140	49,331	15.6	37.8
Montana	374	403	383	27.6	25.0	17.0	10,563	10,075	6,511	22	31
Idaho	129	148	142	34.0	37.0	32.0	4,492	5,476	4,544	20	29
Wyoming	145	154	151	26.0	22.5	21.5	3,801	3,465	3,246	25	32
Colorado	193	141	162	28.2	26.5	25.5	5,595	3,736	4,131	22	28
New Mexico	35	40	38	19.7	23.0	22.0	767	920	836	24	43
Arizona	10	13	13	26.8	28.0	29.0	287	364	377	34	45
Utah	47	54	50	35.6	34.0	31.0	1,783	1,836	1,550	30	30
Nevada	2	3	3	36.5	38.0	30.0	83	114	90	34	38
Washington	154	166	179	46.3	50.0	53.0	7,310	8,300	9,487	26	34
Oregon	259	223	259	30.0	30.5	38.0	8,153	6,802	9,842	29	34
California	98	74	89	25.6	24.5	23.5	2,558	1,813	2,092	28	41
Western	1,447	1,419	1,469	30.5	30.2	29.1	45,393	42,901	42,706	24.6	32.8
United States	40,227	41,425	36,541	29.6	30.1	19.8	1,189,962	1,246,658	722,485	15.7	31.8

[1] Preliminary.
[2] Average price for 6 months.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 60.—*Oats: Acreage, yield per acre, and production in specified countries, average 1921–22 to 1925–26, annual 1930–31 to 1933–34*

Country	Acreage					Yield per acre					Production				
	Average, 1921–22 to 1925–26	1930–31	1931–32	1932–33	1933–34[1]	Average, 1921–22 to 1925–26	1930–31	1931–32	1932–33	1933–34[1]	Average, 1921–22 to 1925–26	1930–31	1931–32	1932–33	1933–34[1]
NORTHERN HEMISPHERE															
North America:	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Canada	14, 585	13, 259	12, 871	13, 148	13, 529	33. 4	33. 9	27. 1	31. 6	24. 1	486, 570	449, 595	348, 795	416, 034	326, 695
United States	42, 441	39, 653	40, 084	41, 425	36, 541	29. 5	32. 2	28. 1	30. 1	19. 8	1, 251, 023	1, 277, 379	1, 126, 913	1, 246, 658	722, 485
Total	57, 026	52, 912	52, 955	54, 573	50, 070	30. 5	32. 6	27. 9	30. 5	21. 0	1, 737, 593	1, 726, 974	1, 475, 708	1, 662, 692	1, 049, 180
Europe:															
England and Wales	2, 039	1, 778	1, 652	1, 580	1, 494	47. 5	52. 8	52. 5	55. 4	57. 4	96, 796	93, 902	86, 751	87, 563	85, 810
Scotland	970	862	835	867	856	49. 0	52. 5	52. 1	60. 2	56. 8	47, 563	45, 290	43, 540	52, 220	48, 580
Irish Free State	736	644	623	632	635	49. 3	68. 7	58. 5	69. 5	-------	36, 310	44, 250	36, 457	43, 904	-------
Northern Ireland	344	307	286	286	288	54. 0	63. 2	55. 3	70. 6	63. 9	18, 582	19, 403	15, 827	20, 201	18, 411
Norway	274	239	237	235	242	41. 6	57. 0	40. 1	56. 7	51. 0	11, 406	13, 621	9, 494	13, 328	12, 342
Sweden	1, 807	1, 631	1, 588	1, 579	1, 541	41. 7	47. 3	42. 9	51. 8	47. 5	75, 374	77, 211	68, 057	81, 845	73, 201
Denmark	1, 118	958	937	984	936	54. 2	71. 7	68. 8	73. 9	72. 9	60, 542	68, 725	64, 448	72, 710	68, 205
Netherlands	380	370	369	350	337	54. 9	55. 3	53. 6	54. 6	61. 6	20, 850	20, 454	19, 784	19, 103	20, 751
Belgium	656	674	729	712	733	62. 4	56. 7	66. 4	73. 6	69. 7	40, 954	38, 223	48, 384	52, 385	51, 088
Luxemburg	70	70	75	69	69	30. 4	39. 3	36. 3	46. 1	53. 1	2, 130	2, 750	2, 721	3, 182	3, 665
France	8, 521	8, 460	8, 563	8, 370	8, 366	35. 3	33. 8	36. 9	39. 7	46. 9	300, 569	285, 953	316, 286	331, 936	392, 759
Spain	1, 623	1, 940	1, 986	1, 926	1, 599	22. 3	25. 8	21. 0	29. 7	24. 3	36, 175	49, 995	41, 670	57, 214	38, 798
Portugal	563	429	422	459	-------	11. 4	18. 1	15. 0	16. 0	-------	6, 422	7, 778	6, 331	7, 358	3, 636
Italy	1, 189	1, 262	1, 146	1, 103	1, 109	31. 9	29. 2	34. 4	37. 7	35. 8	37, 896	36, 828	39, 467	41, 568	39, 706
Switzerland	51	49	45	41	40	54. 7	50. 2	51. 3	59. 1	59. 4	2, 788	2, 460	2, 308	2, 425	2, 377
Germany	8, 246	8, 499	8, 310	8, 116	7, 864	44. 1	45. 9	51. 4	56. 5	60. 9	363, 278	389, 688	427, 479	458, 160	478, 983
Austria	745	772	777	784	755	30. 6	35. 8	29. 4	34. 3	49. 6	22, 817	27, 606	22, 876	26, 855	37, 485
Czechoslovakia	2, 039	2, 034	2, 031	2, 020	1, 976	40. 2	44. 3	41. 5	56. 7	55. 0	82, 029	90, 100	84, 368	114, 627	108, 655
Hungary	785	608	596	580	572	28. 8	29. 6	22. 4	37. 5	38. 1	22, 644	17, 998	13, 368	21, 756	21, 788
Yugoslavia	923	1, 009	974	810	929	22. 4	19. 5	18. 7	22. 9	27. 5	20, 644	19, 634	18, 242	18, 548	25, 566
Greece	206	336	344	304	324	20. 3	17. 5	15. 3	23. 9	29. 4	4, 187	5, 891	5, 274	7, 266	9, 533
Bulgaria	362	345	293	281	332	19. 6	22. 1	24. 1	27. 7	32. 3	7, 100	7, 616	7, 060	7, 776	10, 724
Rumania	3, 133	2, 686	2, 153	1, 956	2, 050	20. 1	29. 7	21. 4	22. 6	27. 6	62, 819	79, 678	46, 175	44, 276	56, 520
Poland	4, 446	5, 404	5, 367	5, 487	5, 444	27. 2	29. 9	29. 6	30. 0	31. 0	120, 813	161, 736	159, 108	164, 713	168, 790
Lithuania	842	855	900	922	848	27. 4	31. 4	31. 1	26. 6	29. 3	23, 078	26, 871	27, 982	24, 553	24, 865
Latvia	740	790	795	802	758	24. 6	29. 8	29. 7	27. 7	30. 1	18, 206	23, 537	23, 611	22, 252	22, 783

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Estonia	[2] 390	368	367	356	343	[2] 23.3	29.5	30.8	25.2	22.7	9,505	10,870	11,296	8,966	7,789
Finland	1,058	1,084	1,119	1,124	1,110	32.6	39.8	41.2	41.0	37.1	34,529	43,173	46,138	46,122	41,226
Russia, European and Asiatic	25,776	42,427	43,242	38,679	--------	20.3	27.0	17.8	20.0	--------	522,905	1,145,353	771,610	774,366	1,061,653
Total Europe reporting area and production, all years	42,957	43,390	42,474	41,644	40,915	35.9	38.2	38.9	43.3	45.7	1,543,274	1,659,213	1,651,714	1,801,550	1,870,400
Estimated European total, excluding Russia	44,300	44,500	43,500	42,700	42,000	--------	--------	--------	--------	--------	1,586,000	1,711,000	1,695,000	1,853,000	1,916,000
Africa:															
Morocco	35	103	60	56	74	18.4	22.9	27.6	22.6	28.2	645	2,357	1,654	1,267	2,086
Algeria	605	635	557	488	521	21.0	26.1	14.7	17.8	17.0	12,713	16,561	8,212	8,707	8,882
Tunis	126	124	72	54	51	19.4	16.7	31.6	35.7	27.0	2,439	2,067	2,273	1,929	1,378
Total	766	862	689	598	646	20.6	24.3	17.6	19.9	19.1	15,797	20,985	12,139	11,903	12,346
Asia:															
Turkey	[3] 216	374	405	294	399	[4] 47.5	26.7	20.0	29.5	29.4	[4] 11,391	10,000	8,095	8,681	11,712
Syria and Lebanon	[2] 26	28	27	28	28	[2] 16.7	19.5	26.3	33.2	32.1	[2] 435	547	711	931	899
Japan	278	297	292	314	--------	39.0	42.3	37.9	24.4	--------	10,847	12,558	11,081	7,653	--------
Chosen	276	270	305	289	--------	16.5	16.0	16.8	15.9	--------	4,545	4,314	5,137	4,585	--------
Total Northern Hemisphere reporting area and production, all years	100,991	97,566	96,550	97,137	92,058	32.8	35.0	32.6	35.9	32.0	3,308,490	3,417,719	3,148,367	3,485,757	2,944,537
Estimated Northern Hemisphere total, excluding Russia and China	102,900	99,300	98,300	98,900	93,800	--------	--------	--------	--------	--------	3,368,000	3,488,000	3,209,000	3,551,000	3,007,000
SOUTHERN HEMISPHERE															
Brazil	16	--------	--------	--------	--------	30.1		--------	--------	--------	482	827	--------	--------	--------
Chile	106	193	166	171	--------	37.3	26.5	29.7	--------	--------	3,954	5,109	4,923	--------	--------
Uruguay	120	103	148	146	194	18.0	13.4	21.0	5.3	23.3	2,166	1,376	3,111	769	4,516
Argentina	1,824	2,243	2,041	2,209	[5] 3,566	32.5	27.2	35.8	31.5	[6] 16.3	59,286	60,983	72,980	69,583	58,146
Union of South Africa	645	535	578	--------	--------	10.3	11.1	--------	--------	--------	6,624	5,920	--------	--------	--------
Australia	1,000	1,082	1,085	--------	--------	19.0	19.2	17.5	--------	--------	19,010	20,823	18,993	--------	--------
New Zealand	125	87	69	116	--------	48.0	47.3	49.8	53.9	--------	5,996	4,115	3,435	6,255	--------
Total Northern and Southern Hemisphere countries reporting area and production, all years	102,935	99,912	98,739	99,492	95,818	32.7	34.8	32.7	35.7	31.4	3,369,942	3,480,078	3,224,458	3,556,109	3,007,199
Estimated world total, excluding Russia and China	106,800	103,600	102,500	103,600	98,200	--------	--------	--------	--------	--------	3,470,000	3,591,000	3,323,000	3,663,000	3,110,000

[1] Preliminary. [2] 4-year average. [3] 2-year average. [4] 1 year only. [5] Acreage sown. [6] Yield per acre sown.

Bureau of Agricultural Economics; official sources and International Institute of Agriculture.

Both acreage and production figures refer to the year of harvest. Harvests of the Northern Hemisphere countries are combined with those of the Southern Hemisphere which immediately follow; thus, for 1933–34 the crop harvested in the Northern Hemisphere countries in 1933 is combined with the Southern Hemisphere harvest which begins late in 1933 and ends early in 1934.

TABLE 61.—*Oats: Production, world and selected countries, 1894–95 to 1933–34*

Crop year	Estimated world production, excluding Russia and China	Estimated European production, excluding Russia	Selected countries							
			United States	Russia [1]	Germany	Canada	France	Poland	England and Wales	Argentina
	Million bushels	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*
1894–95	2,251	1,453	662	683	453	--------	294	--------	119	--------
1895–96	2,443	1,434	824	717	430	--------	306	--------	105	--------
1896–97	2,249	1,378	707	800	411	--------	296	--------	93	--------
1897–98	2,141	1,283	699	664	394	--------	253	--------	99	1
1898–99	2,391	1,513	731	688	465	--------	322	--------	102	1
1899–1900	2,505	1,464	796	995	474	--------	308	--------	99	2
1900–1901	2,624	1,454	914	854	489	--------	285	--------	99	2
1901–2	2,344	1,415	778	624	486	--------	255	--------	91	2
1902–3	2,888	1,576	1,053	931	514	--------	320	--------	115	4
1903–4	2,829	1,649	869	800	542	--------	344	--------	109	3
1904–5	2,711	1,430	1,009	1,124	478	--------	291	--------	112	4
1905–6	2,818	1,455	1,090	937	451	--------	306	--------	99	6
1906–7	3,007	1,683	1,036	714	581	--------	295	--------	109	12
1907–8	2,856	1,763	805	921	630	--------	353	--------	121	34
1908–9	2,842	1,626	851	959	530	266	327	--------	106	32
1909–10	3,440	1,865	1,068	1,163	629	376	383	--------	104	36
1910–11	3,242	1,662	1,186	1,065	544	259	332	--------	104	47
1911–12	3,160	1,685	922	876	531	388	349	--------	96	69
1912–13	3,726	1,722	1,418	1,089	587	416	355	--------	89	76
1913–14	3,607	1,912	1,122	1,251	669	430	357	--------	91	43
1914–15	3,287	1,683	1,141	[2] 915	623	333	318	--------	93	49
1915–16	3,625	1,403	1,549	[3] 897	412	494	239	--------	101	75
1916–17	3,286	1,471	1,252	[4] 845	484	436	277	--------	102	32
1917–18	3,244	1,049	1,593	761	[5] 250	428	[5] 220	--------	106	69
1918–19	3,245	1,120	1,538	--------	302	453	181	--------	141	34
1919–20	2,988	1,320	1,107	--------	310	419	180	76	110	31
1920–21	3,629	1,478	1,444	486	332	564	291	129	103	51
1921–22	3,074	1,455	1,045	359	345	453	244	92	100	31
1922–23	3,275	1,473	1,148	409	277	522	288	110	88	56
1923–34	3,714	1,722	1,227	405	421	599	337	153	95	76
1924–25	3,574	1,572	1,424	603	390	431	306	106	105	53
1925–26	3,712	1,709	1,410	838	385	427	328	144	97	80
1926–27	3,534	1,843	1,142	1,071	436	407	364	134	104	66
1927–28	3,437	1,748	1,093	917	437	467	343	147	94	52
1928–29	3,829	1,879	1,319	1,135	482	480	340	172	101	65
1929–30	3,646	2,060	1,118	1,084	509	301	373	203	107	68
1930–31	3,591	1,711	1,277	1,145	390	450	286	162	94	61
1931–32	3,323	1,695	1,127	772	427	349	316	159	87	73
1932–33	3,663	1,853	1,247	774	458	416	332	165	88	70
1933–34 [6]	3,110	1,916	722	1,062	479	327	393	169	86	58

[1] Includes all Russian territory reporting for the years shown.
[2] Total Russian Empire, exclusive of the 10 Vistula Provinces of Russian Poland and the Province of Batum in Transcaucasia.
[3] Exclusive of Russian Poland, Lithuania, parts of present Latvia and the Ukraine, and the Provinces of Batum and Elizabetpol, in Transcaucasia.
[4] Beginning this year, estimates for the present territory of the Union of Socialist Soviet Republics, exclusive of Turkestan, Transcaucasia, and the Far East, which territory in 1924–25 produced 20,248,000 bushels.
[5] Beginning with this year post-war boundaries, and therefore not comparable with earlier years.
[6] Preliminary.

Bureau of Agricultural Economics; official sources and International Institute of Agriculture.
Production figures refer to the year of harvest. Harvests of the Northern Hemisphere countries are combined with those of the Southern Hemisphere which immediately follow; thus, for 1933–34 the crop harvested in the Northern Hemisphere countries in 1933 is combined with the Southern Hemisphere harvest which begins late in 1933 and ends early in 1934.

TABLE 62.—*Oats: Monthly marketings by farmers, as reported by about 3,500 mills and elevators, United States, 1923–24 to 1932–33*

Season	Percentage of receipts during—													
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Season
	Per cent	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*
1923–24	0.6	7.2	16.2	12.8	11.4	7.5	8.0	7.9	7.8	5.9	4.9	5.1	4.7	100.0
1924–25	.2	6.8	18.3	18.3	12.6	7.7	8.3	7.7	4.8	3.3	2.7	4.9	4.4	100.0
1925–26	.2	9.6	20.0	13.5	10.9	7.4	7.0	6.0	6.2	5.3	4.3	4.6	5.0	100.0
1926–27	1.3	11.4	20.4	12.4	9.1	6.5	6.7	6.6	6.2	5.9	4.4	5.0	4.1	100.0
1927–28	1.4	8.4	21.7	14.5	10.3	6.6	6.6	6.3	6.5	6.0	3.9	4.4	3.4	100.0
1928–29	1.1	6.8	23.7	13.5	10.2	6.5	7.5	5.4	6.6	5.0	4.8	4.1	4.8	100.0
1929–30	1.0	11.3	30.2	12.8	8.7	5.4	5.1	4.2	4.4	4.4	4.8	4.3	3.4	100.0
1930–31	1.4	12.6	27.5	13.2	8.7	4.4	5.0	4.4	5.5	4.5	5.0	3.8	4.0	100.0
1931–32	3.3	15.2	21.5	11.3	7.5	5.6	5.6	5.6	5.5	5.2	5.3	4.9	3.5	100.0
1932–33	13.4	22.4	11.5	7.4	5.1	5.1	4.2	4.2	3.9	5.8	7.5	9.4	0.1	100.0

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TABLE 63.—*Oats: Receipts graded by licensed inspectors, all inspection points, total of all classes under each grade, 1923–24 to 1932–33*

Year beginning August	Grade					Total
	No. 1	No. 2	No. 3	No. 4	Sample	
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
1923–24	2,724	41,530	90,759	22,643	11,307	168,963
1924–25	1,489	33,631	110,377	24,580	14,853	184,930
1925–26	2,197	53,587	75,634	17,989	6,260	155,667
1926–27	1,465	19,692	49,581	28,548	17,695	116,981
1927–28	2,838	29,106	64,444	19,397	5,728	121,513
1928–29	4,408	14,144	77,823	20,684	9,305	126,364
1929–30	4,106	26,053	71,757	11,822	3,097	116,835
1930–31	10,344	36,939	35,186	8,137	983	91,589
1931–32	1,394	21,966	40,303	4,059	926	68,648
1932–33	1,370	24,110	49,901	7,936	1,213	84,530

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TABLE 64.—*Oats: United States, production, 1925–33; stocks on farms, quarterly, 1926–34*

Year	Production	Stocks on farms [1]	Year	Stocks on farms [1]		
		October 1		January 1	April 1	July 1
	1,000 bushels	*1,000 bushels*		*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1925	1,410,336	----------	1926	----------	519,971	229,145
1926	1,141,941	886,480	1927	680,422	398,348	150,728
1927	1,093,097	830,864	1928	628,045	332,957	111,841
1928	1,318,977	1,021,209	1929	766,567	447,773	177,681
1929	1,118,414	854,576	1930	644,029	368,853	144,116
1930	1,277,379	981,352	1931	746,977	429,885	168,554
1931	1,126,913	886,863	1932	655,804	365,794	142,683
1932	1,246,658	974,062	1933	763,263	468,009	204,384
1933	722,485	600,629	1934	450,448	271,339	----------

[1] Revised data.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 65.—*Oats: Commercial stocks, 1926–27 to 1933–34*

DOMESTIC OATS IN UNITED STATES [1]

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1926–27	-------	-------	-------	-------	-------	-------	47,123	47,421	45,105	38,481	30,513	22,553
1927–28	17,686	11,886	23,224	26,513	25,682	24,784	23,815	20,006	21,127	16,803	11,667	7,171
1928–29	3,338	1,939	15,992	17,561	16,900	15,399	17,314	16,219	16,800	14,003	11,493	10,591
1929–30	8,592	8,668	24,318	28,597	32,762	30,064	29,568	26,097	22,937	19,484	16,519	13,247
1930–31	11,028	9,102	25,844	32,904	33,265	30,504	30,896	26,770	23,029	19,055	13,930	9,681
1931–32	8,042	8,021	15,013	17,372	18,180	18,161	16,810	17,096	17,938	15,796	13,621	11,272
1932–33	10,657	12,627	27,273	28,895	29,084	27,484	26,443	26,116	25,946	24,195	21,878	23,959
1933–34	28,430	35,589	46,193	50,846	49,870	48,755	-------	-------	-------	-------	-------	-------

UNITED STATES OATS IN CANADA [2]

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1926–27	-------	-------	-------	-------	-------	-------	352	247	218	164	635	1,432
1927–28	1,759	1,253	1,238	1,435	1,110	825	670	563	438	216	57	239
1928–29	60	4	978	2,326	1,031	547	644	494	424	309	716	529
1929–30	346	334	2,177	4,711	4,435	4,410	3,735	3,236	2,852	2,407	1,934	1,580
1930–31	936	1,106	2,679	2,524	2,425	2,103	1,475	1,110	834	640	821	936
1931–32	584	207	110	199	230	467	165	11	2	0	73	226
1932–33	126	144	1,317	1,530	1,407	1,151	1,094	680	392	158	316	656
1933–34	677	661	918	969	845	1,133	-------	-------	-------	-------	-------	-------

CANADIAN OATS IN CANADA [3]

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1926–27	-------	-------	-------	-------	-------	-------	14,868	14,846	15,026	14,191	10,732	7,977
1927–28	6,620	4,438	3,453	2,505	4,923	7,738	10,656	11,529	12,850	12,918	12,070	7,446
1928–29	8,247	5,893	3,114	3,847	8,591	15,145	20,665	20,905	22,202	24,079	20,492	17,892
1929–30	16,045	15,360	14,859	16,449	19,777	20,998	21,330	20,109	18,489	16,065	12,553	10,340
1930–31	8,753	6,689	5,974	9,075	11,178	13,839	15,015	14,200	13,799	14,769	13,242	10,601
1931–32	9,551	8,874	8,806	9,221	10,823	13,577	15,703	14,624	14,277	14,800	11,054	6,443
1932–33	5,993	6,272	5,741	7,031	8,314	8,653	9,262	9,277	9,265	11,864	11,023	9,796
1933–34	10,252	12,204	13,493	15,893	18,972	20,380	-------	-------	-------	-------	-------	-------

CANADIAN OATS IN UNITED STATES [4]

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1926–27	-------	-------	-------	-------	-------	-------	228	228	171	66	117	321
1927–28	19	24	26	0	139	296	609	312	247	117	21	199
1928–29	122	101	123	141	211	711	900	704	801	516	722	577
1929–30	377	341	341	283	426	670	699	634	615	488	330	264
1930–31	91	146	21	55	27	7	255	167	3	17	78	238
1931–32	73	13	41	41	41	32	32	2	2	1	1	0
1932–33	0	0	0	0	0	0	0	0	0	0	0	0
1933–34	0	0	0	0	0	0	-------	-------	-------	-------	-------	-------

[1] Includes domestic oats in store in public and private elevators in 41 markets and oats afloat in vessels or barges in harbors of lake and seaboard ports. Does not include oats in transit either by rail or water, stocks in mills, or mill elevators attached to mills, or private stocks of oats intended for local use.

[2] Includes United States oats in store at 15 Canadian points or afloat in vessels or barges in the harbors of lake and seaboard ports. Does not include oats in transit to Canadian ports.

[3] Includes practically all Canadian oats held within Canadian boundaries, exclusive of farm and certain mill stocks.

[4] Includes Canadian oats in store and afloat at 10 United States lake and seaboard ports but not Canadian oats in transit on lakes or canals.

Bureau of Agricultural Economics; compiled from weekly reports to the grain, hay, and feed market news service.

Data are for stocks on the Saturday nearest the 1st day of the month.

TABLE 66.—*Oats: Supply and distribution in continental United States, 1926–27 to 1933–34*

Year beginning July	Supply: Production	Supply: Stocks on farms, July 1	Supply: Farm supply, July 1	Supply: Bradstreet's visible, July 1	Supply: Total stocks, July 1	Supply: Total supply, July 1	Distribution: Net exports[1]	Distribution: Stocks, end of year	Distribution: Disappearance
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1926–27	1,141,941	229,145	1,371,086	38,768	267,913	1,409,854	14,988	168,838	1,226,028
1927–28	1,093,097	150,728	1,243,825	18,110	168,838	1,261,935	9,611	115,233	1,137,091
1928–29	1,318,977	111,841	1,430,818	3,392	115,233	1,434,210	15,825	185,795	1,232,590
1929–30	1,118,414	177,681	1,296,095	8,114	185,795	1,304,209	7,791	155,433	1,140,985
1930–31	1,277,379	144,116	1,421,495	11,317	155,433	1,432,812	2,464	176,147	1,254,201
1931–32	1,126,913	168,554	1,295,467	7,593	176,147	1,303,060	4,352	152,857	1,145,851
1932–33	1,246,658	142,683	1,389,341	10,174	152,857	1,399,515	5,333	232,557	1,161,625
1933–34	722,485	204,384	926,869	28,173	232,557	955,042	--------	--------	--------

[1] Includes oatmeal.

Bureau of Agricultural Economics.

TABLE 67.—*Oats, including oatmeal in terms of grain: International trade, average 1925–26 to 1929–30, annual 1929–30 to 1932–33*

Country	Average, 1925–26 to 1929–30: Exports	Average, 1925–26 to 1929–30: Imports	1929–30: Exports	1929–30: Imports	1930–31: Exports	1930–31: Imports	1931–32: Exports	1931–32: Imports	1932–33[1]: Exports	1932–33[1]: Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Argentina	29,280	[2] 91	20,181	--------	45,036	123	52,195	73	33,892	75
Germany	20,070	15,581	47,940	3,964	1,752	2,751	30	1,115	635	1,275
United States	17,754	207	7,966	152	3,123	638	4,437	65	5,361	15
Canada	16,656	2,899	4,600	3,980	10,336	714	18,467	1,817	14,158	2,144
Chile	3,861	--------	1,925	--------	6,512	--------	1,055	--------	682	--------
Czechoslovakia	3,676	1,260	4,424	402	2,408	69	2,435	564	9,462	2
Irish Free State	3,305	1,559	2,141	1,216	847	2,421	230	2,410	145	170
Rumania	3,302	2	[3] 4,974	[3] 0	6,335	0	824	0	[3] 2,067	[3] 0
Poland	2,713	1,499	5,667	257	858	55	183	39	863	30
Russia	2,517	0	4,242	0	33,773	0	14,619	0	1,670	0
Hungary	2,134	2	2,492	1	73	363	17	85	1,252	0
Algeria	1,764	588	1,413	507	4,819	422	923	1,253	409	200
Tunis	1,556	81	2,614	0	1,901	24	655	0	483	1
Yugoslavia [4]	495	[2] 48	28	48	6	380	4	43	2	2
Total	109,083	23,817	110,607	10,527	117,779	7,960	96,074	7,464	71,081	3,914
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	1,170	30,339	958	33,196	1,237	35,576	666	33,309	79	23,830
Switzerland	5	10,936	6	13,613	13	14,263	15	15,645	10	15,642
Belgium	46	8,210	40	8,855	49	10,794	104	5,601	55	3,309
Netherlands	412	7,851	576	11,902	1,173	10,659	160	8,184	82	8,251
Italy	9	7,016	2	5,119	1	12,001	1	11,506	0	9,551
France	648	6,598	233	5,791	73	6,509	24	9,050	15	4,979
Austria	8	6,092	5	8,684	13	6,589	2	4,992	4	2,130
Denmark	217	3,255	63	8,763	65	4,550	237	2,166	232	1,243
Sweden	902	2,956	490	3,853	452	3,779	770	3,946	372	1,972
Finland	25	1,891	0	2,155	24	963	62	674	8	401
Cuba	0	1,157	0	926	0	570	0	405	0	--------
Latvia [5]	110	1,127	513	309	16	183	0	23	--------	--------
Norway	8	714	10	556	13	59	5	857	4	41
Estonia	0	693	0	389	0	534	0	24	0	0
Australia	155	276	184	38	267	25	360	19	--------	--------
Union of South Africa	148	160	169	107	84	104	84	96	42	71
Japan [5]	0	96	0	117	0	9	0	8	0	--------
Total	3,863	89,367	3,249	104,373	3,480	107,167	2,490	96,505	903	71,420

[1] Preliminary.
[2] 3-year average.
[3] Monthly Crop Report and Agricultural Statistics.
[4] Calendar year.
[5] Year beginning Aug. 1, International Yearbook of Agricultural Statistics.

Bureau of Agricultural Economics; official sources except where otherwise noted.

TABLE 68.—*Oats: Average price per bushel received by producers, United States, 1924–25 to 1933–34*

Year	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	49.4	49.1	47.1	48.9	47.4	50.6	54.0	53.4	49.7	44.7	45.4	48.3	49.0
1925–26	45.3	40.7	38.1	37.2	37.6	39.1	40.0	39.2	38.8	39.4	39.5	38.9	39.7
1926–27	37.7	37.9	35.6	39.0	39.8	41.1	42.6	43.4	43.4	43.2	45.4	48.0	40.0
1927–28	46.3	44.4	43.9	44.6	45.1	48.1	49.3	51.3	54.5	56.9	62.0	61.4	47.9
1928–29	56.2	38.4	36.7	39.0	39.8	42.5	43.7	47.0	46.6	45.8	44.6	42.5	42.2
1929–30	42.9	42.7	44.1	44.8	43.1	43.6	43.1	43.0	41.4	42.4	40.9	39.3	42.9
1930–31	33.1	35.7	36.1	34.7	31.5	32.3	31.1	30.7	30.1	30.2	28.6	26.1	33.4
1931–32	23.3	19.8	20.0	20.1	23.2	23.0	22.7	22.8	22.8	22.8	21.8	19.8	21.7
1932–33	17.5	14.8	14.4	13.1	13.1	13.0	13.4	13.3	13.7	17.0	21.7	23.1	16.4
1933–34	39.1	32.2	32.3	27.9	31.4	31.4							

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices by States, weighted by production to obtain a price for the United States; yearly price obtained by weighting monthly prices by monthly marketings.

TABLE 69.—*Oats, No. 3, white: Weighted average price*[1] *per bushel of reported cash sales, Chicago, 1924–25 to 1933–34*

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	50	48	50	50	58	58	53	48	42	45	49	44	50
1925–26	41	39	39	40	42	42	41	40	42	41	40	42	41
1926–27	38	38	44	42	46	46	43	44	45	50	49	45	43
1927–28	47	47	48	49	54	55	56	59	63	67	68	56	55
1928–29	38	41	42	44	56	50	50	48	48	45	45	47	44
1929–30	43	48	47	45	45	45	44	43	43	41	38	35	44
1930–31	39	38	36	33	34	32	32	31	30	28	27	23	35
1931–32	21	22	23	26	25	25	24	22	23	23	21	18	22
1932–33	17	17	15	15	15	15	15	17	22	25	30	39	22
1933–34	36	35	32	34	35								

[1] Average of daily prices weighted by car-lot sales.

Bureau of Agricultural Economics; compiled from the Chicago Daily Trade Bulletin.
Data for 1899–1924 available in 1924 Yearbook, p. 628, table 94.

TABLE 70.—*Barley: Acreage, production, value, foreign trade, etc., United States, 1900–1933*

Year	Acreage harvested	Average yield per acre	Production	Price per bushel received by producers Dec. 1 [1]	Farm value, basis Dec. 1 price	Price per bushel at Chicago, year beginning August [2]	Foreign trade, including barley, flour, and malt, year beginning July [3]: Domestic exports	Imports	Net exports [4]: Total	Net exports [4]: Percentage of production
	1,000 acres	*Bushels*	*1,000 bushels*	*Cents*	*1,000 dollars*	*Cents*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Per cent*
1900	4, 545	21. 1	96, 041	40. 5	38, 896	[5] 56	6, 619	175	6, 445	6. 7
1901	4, 742	25. 7	121, 784	45. 2	55, 068	64	9, 079	60	9, 019	7. 4
1902	5, 126	29. 1	149, 389	45. 5	67, 944	56	8, 745	59	8, 686	5. 8
1903	5, 568	26. 4	146, 864	45. 4	66, 700	56	11, 280	94	11, 187	7. 6
1904	5, 912	27. 4	162, 105	41. 6	67, 427	49	11, 105	84	11, 021	6. 8
1905	6, 250	27. 2	170, 089	39. 4	66, 959	50	18, 431	20	18, 410	10. 8
1906	6, 730	28. 6	192, 270	41. 6	80, 069	61	8, 616	41	8, 632	4. 5
1907	6, 941	24. 5	170, 008	66. 3	112, 675	84	4, 554	202	4, 370	2. 6
1908	7, 294	25. 3	184, 857	55. 2	102, 037	67	6, 729	4	6, 725	3. 6
1909	*7, 699*	*22. 5*	*173, 344*	----	----	----	----	----	----	----
1909	7, 699	24. 4	187, 973	54. 8	102, 947	67	4, 454	5	4, 449	2. 4
1910	7, 743	22. 5	173, 832	57. 8	100, 426	92	9, 507	187	9, 320	5. 4
1911	7, 627	21. 0	160, 240	86. 9	139, 182	122	1, 655	2, 772	[6] 1, 117	----
1912	7, 530	29. 7	223, 824	50. 5	112, 957	68	17, 874	15	17, 859	8. 0
1913	7, 499	23. 8	178, 189	53. 7	95, 731	65	6, 945	351	6, 594	3. 7
1914	7, 565	25. 8	194, 953	54. 3	105, 903	72	28, 712	103	28, 609	14. 7
1915	7, 148	32. 0	228, 851	51. 6	118, 172	69	30, 821	37	30, 783	13. 5
1916	7, 757	23. 5	182, 309	88. 1	160, 646	191	20, 319	462	19, 857	10. 9
1917	8, 933	23. 7	211, 759	113. 7	240, 758	146	28, 717	517	28, 200	13. 3
1918	9, 740	26. 3	256, 225	91. 7	234, 942	104	29, 324	24	29, 301	11. 4
1919	*6, 473*	*18. 9*	*122, 025*	----	----	----	----	----	----	----
1919	6, 579	19. 9	131, 086	124. 4	163, 045	145	34, 691	335	34, 356	26. 2
1920	7, 439	23. 0	171, 042	84. 4	144, 276	78	27, 255	20	27, 234	15. 9
1921	7, 074	18. 8	132, 702	47. 8	63, 471	61	27, 546	8	27, 538	20. 8
1922	6, 601	23. 2	152, 908	49. 9	76, 314	65	21, 909	38	21, 871	14. 3
1923	7, 151	22. 2	158, 994	54. 6	86, 868	72	13, 913	55	13, 858	8. 7
1924	*6, 767*	*23. 5*	*159, 139*	----	----	----	----	----	----	----
1924	7, 038	23. 8	167, 314	74. 2	124, 086	90	28, 543	48	28, 495	17. 0
1925	8, 186	23. 5	192, 779	61. 4	118, 355	72	30, 448	53	30, 395	15. 8
1926	7, 917	20. 8	164, 467	57. 9	95, 288	77	19, 655	49	19, 605	12. 0
1927	9, 465	25. 4	240, 057	68. 9	165, 421	91	39, 274	45	39, 230	16. 3
1928	12, 735	25. 9	329, 625	56. 8	187, 133	60	60, 295	45	60, 249	18. 3
1929	*12, 891*	*20. 4*	*263, 590*	----	----	----	----	----	----	----
1929	13, 523	20. 7	280, 242	53. 9	150, 946	62	24, 054	41	24, 013	8. 6
1930	12, 666	24. 0	303, 752	40. 4	122, 620	54	11, 443	1, 413	10, 030	3. 3
1931	11, 424	17. 4	198, 543	32. 5	64, 563	40	5, 469	1, 509	3, 960	2. 0
1932	13, 346	22. 6	302, 042	22. 0	66, 394	38	9, 399	1, 406	7, 993	2. 6
1933 [7]	10, 052	15. 5	156, 104	41. 7	65, 103	----	----	----	----	----

[1] Beginning with 1919 prices are weighted average prices for crop marketing season.

[2] From Bureau of Labor Statistics as follows: Bulletin No. 39, 1900–1901. August 1900–December 1901, Choice to Fancy malting, by samples. Wholesale price bulletins—monthly quotations, January 1902–December 1913, Choice to Fancy malting; January 1914–September 1927, Fair to Good malting. Beginning October 1927, grade reported as feeding, but as quality remained unchanged, no change was made in comparative prices.

[3] Compiled from Commerce and Navigation of the United States, 1900–1917: Foreign Commerce and Navigation of the United States, 1918: Monthly Summary of Foreign Commerce of the United States, June issues, 1919–26; January and June issues, 1927–33; and official records of the Bureau of Foreign and Domestic Commerce. Malt converted to terms of barley on the basis that 1.1 bushels of malt is the product of 1 bushel of barley. Barley flour converted on the basis that 1 barrel of flour is the product of 9 bushels of barley. Exports of flour not reported prior to 1919. Barley—general imports, 1900–1909; imports for consumption, 1910–33. Malt—general imports, 1909–14; imports for consumption, 1915–33. Imports of flour not reported prior to 1915; imports for consumption, 1915–33.

[4] Total exports (domestic exports plus reexports) minus total imports.

[5] Average for 11 months.

[6] Net imports. Total imports minus total exports (domestic plus foreign).

[7] Preliminary.

Bureau of Agricultural Economics.

Production figures are estimates of the Crop Reporting Board, revised, 1919–28. See introductory text; italic figures are census returns. See 1927 Yearbook, p. 799, for data for earlier years.

TABLE 71.—*Barley: Acreage, yield, production, and weighted average price per bushel received by producers, by States, averages, and annual 1932 and 1933*

State and division	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average 1926–30	1932	1933 [1]	Average 1921–30	1932	1933 [1]	Average 1926–30	1932	1933 [1]	1932	1933 [2]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Cents*	*Cents*
Maine	3	4	5	29.7	30.0	31.0	94	120	155	54	66
Vermont	5	5	4	26.0	28.0	24.0	128	140	96	49	68
New York	192	151	165	26.6	26.0	20.0	5,242	3,926	3,300	38	54
New Jersey	1	1	1	28.2	25.0	28.0	31	25	28	43	56
Pennsylvania	29	69	81	23.0	25.0	25.0	716	1,725	2,025	42	57
North Atlantic	231	230	256	26.3	25.8	21.9	6,211	5,936	5,604	39.8	55.7
Ohio	156	90	44	25.2	21.0	15.0	4,119	1,890	660	25	45
Indiana	42	40	26	20.7	20.0	10.0	916	800	260	25	47
Illinois	401	371	319	29.5	28.5	15.0	11,621	10,574	4,785	28	47
Michigan	210	317	250	23.9	20.0	13.0	5,389	6,340	3,250	32	50
Wisconsin	654	789	805	29.9	30.0	22.0	20,717	23,670	17,710	35	52
Minnesota	1,820	1,968	1,850	25.1	24.0	15.5	46,601	47,232	28,675	22	43
Iowa	551	604	532	28.6	25.0	16.0	16,751	15,100	8,512	23	42
Missouri	11	19	12	19.0	17.0	17.0	184	323	204	29	57
North Dakota	2,246	2,376	1,830	18.6	17.0	10.0	40,012	40,392	18,300	14	33
South Dakota	1,550	2,053	493	19.6	23.2	7.0	30,550	47,630	3,451	16	36
Nebraska	455	918	799	22.0	20.0	10.5	11,482	18,360	8,390	16	28
Kansas	505	704	408	15.3	14.0	8.0	8,507	9,856	3,264	15	37
North Central	8,602	10,249	7,368	22.1	21.7	13.2	196,849	222,167	97,461	20.5	41.4
Maryland	9	21	23	28.2	29.0	26.0	270	609	598	37	49
Virginia	12	30	34	25.1	25.5	24.5	311	765	833	39	62
West Virginia	------	4	4	------	28.5	23.0	------	114	92	40	56
North Carolina	15	19	17	[3] 18.3	15.0	16.0	276	285	272	51	79
South Atlantic	36	74	78	24.3	24.0	23.0	857	1,773	1,795	40.3	59.9
Kentucky	5	10	12	22.4	20.0	23.0	125	200	276	38	58
Tennessee	14	20	21	17.7	16.2	18.0	256	324	378	46	66
Oklahoma	79	138	80	14.6	12.5	9.0	1,236	1,725	720	19	48
Texas	186	210	172	17.8	17.0	10.0	3,472	3,570	1,720	19	45
South Central	284	378	285	16.6	15.4	10.9	5,088	5,819	3,094	21.2	49.4
Montana	210	195	205	23.1	20.0	13.5	4,888	3,900	2,768	26	37
Idaho	129	163	143	30.8	36.0	29.0	4,205	5,868	4,147	24	35
Wyoming	98	127	91	22.5	20.0	19.0	2,207	2,540	1,729	26	37
Colorado	489	439	430	19.2	16.5	16.0	9,588	7,244	6,880	20	29
New Mexico	8	13	13	17.2	17.0	18.0	149	221	234	24	44
Arizona	10	21	20	30.2	35.0	35.0	303	735	700	36	48
Utah	33	44	37	35.2	39.0	31.0	1,294	1,716	1,147	33	39
Nevada	7	7	5	37.2	38.0	30.0	262	266	150	41	47
Washington	57	64	74	31.6	30.0	35.0	1,888	1,920	2,590	33	41
Oregon	73	96	113	27.4	28.0	29.5	2,121	2,688	3,334	34	41
California	994	1,246	934	27.2	31.5	26.2	27,719	39,249	24,471	24	43
Western	2,108	2,415	2,065	25.7	27.5	23.3	54,624	66,347	48,150	24.9	39.5
United States	11,261	13,346	10,052	22.8	22.6	15.5	263,629	302,042	156,104	22.0	41.7

[1] Preliminary.
[2] Average price for 6 months.
[3] 7-year average.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 72.—*Barley: Production, world and selected countries, 1894–95 to 1933–34*

Crop year	Estimated world production, excluding Russia and China	Estimated European production, excluding Russia	Selected countries							
			United States	Russia [1]	Germany	Japan	Canada	India	Spain	Rumania
	Million bushels	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*	*Million bushels*
1894–95	1,038	547	78	197	133	81	--------	--------	57	17
1895–96	1,011	529	115	226	131	80	--------	--------	47	22
1896–97	976	530	99	254	127	71	--------	--------	36	32
1897–98	909	483	103	239	120	73	--------	--------	46	21
1898–99	1,041	566	100	307	132	83	--------	--------	73	30
1899–1900	1,020	536	117	227	140	77	--------	--------	54	5
1900–1901	1,034	525	96	237	141	82	--------	--------	57	15
1901–2	1,087	573	122	240	156	83	--------	--------	80	24
1902–3	1,130	595	149	338	145	74	--------	--------	81	25
1903–4	1,106	596	147	357	156	60	--------	--------	64	30
1904–5	1,070	515	162	346	138	81	--------	--------	54	12
1905–6	1,070	535	170	347	137	77	--------	--------	46	26
1906–7	1,229	613	192	331	146	84	--------	--------	90	34
1907–8	1,165	572	170	377	164	90	--------	--------	54	20
1908–9	1,135	539	185	402	143	87	47	--------	70	13
1909–10	1,341	624	188	502	164	87	55	--------	79	20
1910–11	1,245	563	174	488	136	82	29	--------	76	29
1911–12	1,329	609	160	437	148	86	44	--------	87	26
1912–13	1,349	592	224	496	163	91	49	--------	60	21
1913–14	1,398	635	178	600	172	101	48	--------	69	27
1914–15	1,215	547	195	[2] 433	144	86	36	125	72	26
1915–16	1,244	477	229	[3] 429	114	95	54	143	84	29
1916–17	1,201	507	182	[4] 305	128	89	43	148	87	30
1917–18	1,170	427	212	325	[5] 86	89	55	156	78	--------
1918–19	1,277	424	256	--------	94	[6] 89	77	156	90	[5] 5
1919–20	1,104	483	131	--------	77	95	56	130	82	32
1920–21	1,233	554	171	216	82	92	63	150	90	68
1921–22	1,220	557	133	118	89	88	60	117	89	44
1922–23	1,277	588	153	176	74	87	72	146	78	94
1923–24	1,377	649	159	196	108	71	77	145	112	61
1924–25	1,297	566	167	181	110	75	89	137	84	31
1925–26	1,465	672	193	269	119	91	87	123	99	47
1926–27	1,435	674	164	246	113	88	100	121	96	77
1927–28	1,457	659	240	203	126	82	97	119	92	58
1928–29	1,670	743	330	260	154	81	136	98	82	69
1929–30	1,740	828	280	331	146	80	102	118	97	126
1930–31	1,678	760	304	311	131	72	135	107	104	109
1931–32	1,469	690	199	[7] 225	139	77	67	112	91	65
1932–33	1,656	780	302	231	148	78	81	111	133	67
1933–34 [8]	1,456	771	156	361	159	67	63	--------	97	86

[1] Includes all Russian territory reporting for the years shown.
[2] Total Russian Empire exclusive of the 10 Vistula Provinces of Russian Poland and the Province of Batum in Transcaucasia.
[3] Exclusive of Russian Poland, Lithuania, parts of present Latvia and the Ukraine, and 2 Provinces of Transcaucasia.
[4] Beginning this year, estimates within present boundaries of the Union of Socialist Soviet Republics excluding Turkestan, Transcaucasia, and the Far East, which regions in 1924–25 produced 20,897,000 bushels.
[5] Post-war boundaries beginning this year, and therefore not comparable with earlier years.
[6] Beginning this year weighed bushels, those reported for the earlier years being measured bushels.
[7] Spring barley only, which usually comprises about 95 percent of the total.
[8] Preliminary.

Bureau of Agricultural Economics; official sources and International Institute of Agriculture.
Production figures refer to the year of harvest. Harvests of the Northern Hemisphere countries are combined with those of the Southern Hemisphere which immediately follow; thus, for 1933–34 the crop harvested in the Northern Hemisphere countries in 1933 is combined with the Southern Hemisphere harvest which begins late in 1933 and ends early in 1934.

TABLE 73.—*Barley: Acreage, yield per acre, and production in specified countries, average 1921–22 to 1925–26, annual 1930–31 to 1933–34*

Country	Acreage					Yield per acre					Production				
	Average, 1921–22 to 1925–26	1930–31	1931–32	1932–33	1933–34 [1]	Average, 1921–22 to 1925–26	1930–31	1931–32	1932–33	1933–34 [1]	Average, 1921–22 to 1925–26	1930–31	1931–32	1932–33	1933–34 [1]
NORTHERN HEMISPHERE															
North America:	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Canada	3,022	5,559	3,768	3,758	3,658	25.4	24.3	17.9	21.5	17.3	76,899	135,160	67,383	80,773	63,359
United States	7,210	12,666	11,424	13,346	10,052	22.3	24.0	17.4	22.6	15.5	160,939	303,752	198,543	302,042	156,104
Mexico	647	361	370	394	-----	6.0	7.5	8.5	7.7	-----	3,909	2,697	3,158	3,051	-----
Estimated North American total	10,900	18,600	15,600	17,500	14,100	-----	-----	-----	-----	-----	242,000	442,000	269,000	386,000	222,000
Europe:															
England and Wales	1,352	1,020	1,029	961	751	34.2	33.7	35.0	37.3	39.2	46,274	34,377	36,066	35,798	29,456
Scotland	158	107	88	69	60	38.6	41.4	39.2	44.6	44.3	6,092	4,433	3,453	3,080	2,660
Irish Free State	156	116	116	103	117	38.3	47.6	42.4	48.3	-----	5,981	5,517	4,921	4,974	-----
Norway	137	134	138	137	142	32.0	36.7	30.5	39.7	33.5	4,383	4,922	4,207	5,433	4,754
Sweden	409	327	311	293	279	31.6	33.7	32.9	37.2	35.6	12,921	11,032	10,238	10,904	9,922
Denmark	695	928	889	854	860	46.4	52.0	49.5	54.3	50.7	32,246	48,271	43,972	46,347	43,633
Netherlands	63	76	71	49	44	52.4	52.9	46.1	55.3	56.2	3,302	4,017	3,274	2,710	2,471
Belgium	84	84	83	94	80	49.1	45.5	48.4	50.0	48.4	4,127	3,825	4,018	4,701	3,876
France	1,713	1,842	1,865	1,779	1,796	25.6	23.0	25.6	28.1	32.0	43,892	42,456	47,730	50,015	57,486
Spain	4,343	4,543	4,644	4,837	4,521	21.2	22.9	19.5	27.4	21.5	92,268	103,922	90,724	132,565	97,047
Portugal	182	171	170	192	-----	11.3	13.8	11.9	12.5	-----	2,053	2,367	2,025	2,398	1,438
Italy	567	583	538	520	510	18.1	19.2	20.6	21.9	20.4	10,283	11,202	11,061	11,367	10,402
Germany	3,198	3,753	4,001	3,875	3,918	31.3	35.0	34.6	38.1	40.7	100,182	131,369	138,622	147,647	159,287
Austria	331	430	416	428	418	22.2	28.6	23.9	29.4	40.9	7,341	12,278	9,948	12,589	17,109
Czechoslovakia	1,670	1,667	1,775	1,759	1,642	30.0	33.6	27.8	39.3	37.8	50,119	55,932	49,356	69,119	62,031
Hungary	1,096	1,131	1,165	1,164	1,203	20.3	24.4	18.8	28.4	28.9	22,198	27,605	21,867	33,029	34,730
Yugoslavia	902	1,097	1,065	1,006	1,060	15.6	16.9	16.9	17.9	20.1	14,027	18,573	17,999	17,982	21,268
Greece	383	534	550	519	550	14.8	14.7	13.0	18.5	19.3	5,676	7,831	7,146	9,618	10,601
Bulgaria	539	692	605	568	578	17.2	28.7	26.2	24.8	28.6	9,266	19,868	15,860	14,102	16,528
Rumania	4,315	4,881	4,742	4,415	4,485	12.8	22.3	13.7	15.3	19.1	55,295	108,912	64,962	67,385	85,796
Poland	2,547	3,048	3,144	2,982	2,928	19.6	22.1	21.6	21.6	21.6	49,850	67,236	67,779	64,339	63,382
Lithuania	451	529	474	497	512	20.5	20.6	22.8	22.1	20.6	9,234	10,883	10,797	10,975	10,541
Latvia	414	437	451	457	456	16.9	19.7	19.5	19.4	19.6	6,979	8,605	8,808	8,849	8,955
Estonia	303	276	279	266	256	18.0	21.4	21.2	17.3	13.9	5,464	5,893	5,917	4,607	3,562

Finland	273	285	292	308	314	21.2	26.6	26.0	26.7	24.1	5,782	7,571	7,606	8,218	7,560
Russia, European and Asiatic	14,793	17,790	[2] 15,982	16,936	----	12.7	17.5	[2] 14.1	13.6	----	187,970	311,082	[2] 225,053	231,024	360,544
Total Europe reporting area and production, all years	25,943	28,404	28,615	27,837	27,363	23.0	26.4	23.8	27.7	27.9	597,201	751,013	681,410	771,379	763,057
Estimated European total excluding Russia	26,300	28,700	28,900	28,200	27,700	----	----	----	----	----	606,000	760,000	690,000	780,000	771,000
Africa:															
Morocco	2,862	3,207	3,221	3,298	3,439	14.1	11.7	18.3	14.3	14.0	40,304	37,490	59,030	47,146	48,042
Algeria	3,017	3,649	3,178	3,339	3,277	10.2	10.5	8.5	9.3	9.9	30,779	38,186	27,068	30,901	32,523
Tunis	1,033	1,202	1,223	1,507	927	6.6	4.6	6.8	10.4	5.9	6,843	5,512	8,268	15,616	5,512
Egypt	381	345	306	366	292	30.0	30.4	31.7	33.0	31.6	11,427	10,505	9,693	12,066	9,236
Estimated African total	8,100	8,900	8,500	8,900	8,500	----	----	----	----	----	101,000	98,000	123,000	113,000	103,000
Asia:															
Turkey	[3] 2,146	3,418	3,769	3,400	3,020	[4] 29.5	20.4	19.9	15.8	19.8	[4] 57,482	69,848	74,875	53,647	59,710
India	7,501	8,162	8,194	7,695	----	17.8	13.1	13.6	14.5	----	133,793	107,007	111,627	111,440	----
Syria and Lebanon	[5] 796	870	845	794	739	[5] 9.5	26.2	16.9	11.7	17.0	7,300	22,769	14,314	9,299	12,594
Japan	2,630	2,115	2,097	2,107	1,923	31.4	34.3	36.5	36.9	34.8	82,490	72,472	76,518	77,741	66,984
Chosen	2,131	2,382	2,410	2,446	2,501	17.2	16.7	17.4	18.0	17.5	36,607	39,847	41,861	44,086	43,708
Estimated Asiatic total	17,200	19,700	19,700	19,200	18,600	----	----	----	----	----	347,000	344,000	348,000	325,000	305,000
Total Northern Hemisphere countries reporting area and production, all years	51,171	63,817	60,856	62,198	57,191	21.7	23.3	20.7	23.2	22.0	1,108,271	1,486,554	1,258,963	1,444,696	1,260,829
Estimated Northern Hemisphere total, excluding Russia and China	62,500	75,900	72,700	73,800	68,900	----	----	----	----	----	1,296,000	1,644,000	1,430,000	1,604,000	1,401,000
SOUTHERN HEMISPHERE															
Chile	162	166	106	155	----	33.0	23.3	29.2	----	----	5,347	3,876	3,097	----	----
Argentina	504	794	1,011	1,286	[6] 1,783	19.7	17.6	19.6	25.0	[7] 19.8	9,924	14,000	19,771	32,150	35,365
Union of South Africa	97	70	76	----	----	12.3	16.9	----	----	----	1,189	1,184	----	----	----
Australia	307	383	342	----	----	19.7	18.1	19.2	----	----	6,048	6,938	6,553	----	----
Estimated Southern Hemisphere total	1,500	1,900	2,000	2,500	2,500	----	----	----	----	----	31,000	34,000	39,000	52,000	55,000
Total Northern and Southern Hemisphere countries reporting area and production, all years	51,675	64,611	61,867	63,484	58,974	21.6	23.2	20.7	23.3	22.0	1,118,195	1,500,554	1,278,734	1,476,846	1,296,194
Estimated world total, excluding Russia and China	64,000	77,800	74,700	76,300	71,400	----	----	----	----	----	1,327,000	1,678,000	1,469,000	1,656,000	1,456,000

[1] Preliminary. [2] Spring barley only, which usually comprises about 95 percent of the total. [3] 2-year average. [4] 1 year only. [5] 4-year average. [6] Acreage sown. [7] Yield per acre sown.

Bureau of Agricultural Economics; official sources and International Institute of Agriculture.

Both acreage and production figures refer to the year of harvest. Harvests of the Northern Hemisphere countries are combined with those of the Southern Hemisphere which immediately follow; thus, for 1932–33 the crop harvested in the Northern Hemisphere countries in 1932 is combined with the Southern Hemisphere harvest which begins late in 1932 and ends early in 1933.

TABLE 74.—*Barley: Monthly marketings by farmers, as reported by about 3,500 mills and elevators, United States, 1923–24 to 1932–33*

Season	Percentage of receipts during—													
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Season
	Per cent	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*
1923–24	2.4	11.6	20.2	14.0	11.8	9.3	8.0	5.7	4.5	3.8	3.6	3.2	1.9	100.0
1924–25	3.2	9.9	16.2	20.1	16.6	8.4	5.9	5.2	3.8	3.4	2.2	2.7	2.4	100.0
1925–26	4.3	14.4	19.0	18.4	11.8	6.9	5.4	4.3	3.5	3.4	2.4	3.6	2.6	100.0
1926–27	5.8	16.1	21.2	12.9	8.8	7.0	5.3	5.3	3.2	3.8	3.7	3.8	3.1	100.0
1927–28	6.3	9.5	18.2	19.8	12.3	7.7	6.0	4.9	4.5	4.5	2.3	2.1	1.9	100.0
1928–29	6.1	10.4	21.8	18.7	12.1	7.1	5.9	3.6	3.7	3.2	2.7	2.4	2.3	100.0
1929–30	7.2	17.4	25.3	13.4	9.2	5.7	4.7	3.6	3.0	3.0	2.7	2.9	1.9	100.0
1930–31	9.0	8.8	24.9	16.6	10.4	6.0	5.1	4.5	3.5	3.3	3.1	3.1	1.7	100.0
1931–32	4.0	16.4	21.5	13.8	10.5	6.2	5.5	4.5	3.9	4.4	4.2	3.4	1.7	100.0
1932–33	8.6	30.5	13.8	7.5	5.6	4.7	2.8	2.6	4.1	6.6	7.6	5.3	.3	100.0

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TABLE 75.—*Barley: Receipts graded by licensed inspectors, all inspection points, total of all classes under each grade, 1926–27 to 1932–33*

Year beginning July	Grade											Total
	Choice No. 1	No. 1	Choice No. 2	Special No. 2	No. 2	Choice No. 3	No. 3	No. 4	No. 5	No. 1 feed	Sample	
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
1926–27 [1]	251	481	107	2,168	2,005	421	4,929	4,026	266	916	15,063	30,633
1927–28	262	2,199	90	14,913	12,151	274	16,299	6,197	183	2,875	10,923	66,366
1928–29	329	966	100	13,128	20,900	392	25,264	20,129	135	6,502	11,021	98,866
1929–30	223	700	50	9,966	5,800	315	13,907	7,269	102	3,602	5,124	47,058
1930–31	261	1,483	76	11,629	7,067	249	12,489	6,305	127	2,034	1,927	43,647
1931–32	142	568	35	6,014	2,410	130	8,958	2,743	146	865	873	22,884
1932–33	530	764	50	13,111	1,551	152	8,601	1,639	80	301	4,817	31,596

[1] Barley grades became effective Aug. 24, 1926.
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TABLE 76.—*Barley: Supply and distribution in continental United States, 1926–27 to 1933–34*

Year beginning August	Supply						Distribution		
	Production	Stocks on farms Aug. 1	Farm supply Aug. 1	Bradstreet's visible Aug. 1	Total stocks Aug. 1	Total supply Aug. 1	Net exports [1]	Stocks end of year	Disappearance
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1926–27	164,467	8,752	173,219	2,299	11,051	175,518	20,512	4,341	150,665
1927–28	240,057	3,450	243,507	891	4,341	244,398	38,967	7,950	197,481
1928–29	329,625	7,098	336,723	852	7,950	337,575	62,172	21,641	253,762
1929–30	280,242	16,123	296,365	5,518	21,641	301,883	20,630	15,674	265,579
1930–31	303,752	11,677	315,429	3,997	15,674	319,426	11,510	16,962	290,954
1931–32	198,543	13,513	212,056	3,449	16,962	215,515	4,090	7,781	203,644
1932–33	302,042	5,969	308,011	1,812	7,781	309,823	9,423	27,652	272,748
1933–34	156,104	16,019	172,123	11,633	27,652	183,756			

[1] Includes barley, barley flour, and malt. Barrel of flour calculated as equal to 9 bushels of grain, and 1.1 bushels of malt equal to 1 bushel of grain.

Bureau of Agricultural Economics.

TABLE 77.—*Barley: Commercial stocks, 1926–27 to 1933–34*

DOMESTIC BARLEY IN UNITED STATES [1]

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1926–27	-------	-------	-------	-------	-------	7, 097	6, 664	6, 116	5, 339	3, 675	3, 046	2, 720
1927–28	3, 108	5, 041	6, 549	5, 957	5, 769	4, 825	4, 423	4, 273	4, 588	3, 890	2, 410	2, 801
1928–29	3, 395	9, 318	10, 681	11, 067	11, 744	10, 926	11, 985	11, 399	9, 998	8, 412	7, 373	6, 861
1929–30	9, 798	12, 894	12, 563	12, 721	11, 760	12, 074	10, 961	10, 415	9, 726	8, 137	6, 843	6, 366
1930–31	6, 746	10, 945	15, 856	15, 018	14, 637	13, 987	14, 261	12, 279	10, 159	7, 319	6, 232	6, 716
1931–32	6, 568	7, 093	7, 211	7, 355	7, 124	6, 164	5, 710	5, 185	4, 179	3, 732	3, 005	2, 793
1932–33	3, 440	6, 651	8, 976	9, 380	9, 862	10, 245	10, 516	10, 162	9, 848	9, 599	12, 181	13, 417
1933–34	14, 587	17, 975	19, 330	20, 647	19, 958	-------	-------	-------	-------	-------	-------	-------

UNITED STATES BARLEY IN CANADA [2]

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1926–27	-------	-------	-------	-------	-------	272	300	64	70	59	0	13
1927–28	5	66	665	344	152	40	42	9	25	9	1	20
1928–29	0	767	4, 171	5, 599	2, 319	1, 144	312	173	170	81	92	659
1929–30	279	246	1, 266	1, 749	955	972	937	938	936	993	963	937
1930–31	797	652	580	444	371	338	309	291	272	243	68	45
1931–32	45	24	24	24	24	25	25	25	25	25	77	6
1932–33	1	130	114	111	21	21	21	21	21	21	21	21
1933–34	0	0	0	0	0	-------	-------	-------	-------	-------	-------	-------

CANADIAN BARLEY IN CANADA [3]

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1926–27	-------	-------	-------	-------	-------	11, 082	9, 618	10, 218	10, 331	6, 378	4, 869	3, 159
1927–28	2, 447	1, 055	3, 574	6, 162	6, 904	7, 972	8, 192	8, 528	8, 623	8, 218	4, 927	2, 895
1928–29	1, 888	1, 356	9, 010	13, 553	13, 419	16, 926	16, 442	17, 345	18, 317	14, 342	11, 003	8, 664
1929–30	6, 637	8, 285	18, 101	22, 701	25, 027	26, 423	25, 989	24, 685	23, 422	21, 507	20, 827	20, 065
1930–31	18, 031	20, 035	27, 167	31, 047	30, 048	29, 990	29, 162	28, 259	26, 812	23, 950	14, 886	11, 591
1931–32	10, 142	8, 468	10, 885	11, 270	9, 633	9, 878	9, 878	9, 631	9, 620	7, 949	6, 423	4, 874
1932–33	3, 672	2, 906	5, 723	5, 339	5, 532	6, 784	6, 799	6, 696	6, 790	6, 576	6, 515	6, 966
1933–34	7, 783	8, 687	10, 623	11, 981	12, 127	-------	-------	-------	-------	-------	-------	-------

CANADIAN BARLEY IN UNITED STATES [4]

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1926–27	-------	-------	-------	-------	-------	2, 942	2, 246	1, 677	608	2, 401	1, 573	175
1927–28	19	27	27	717	1, 768	1, 945	1, 499	1, 191	557	112	483	278
1928–29	300	249	1, 751	2, 959	4, 778	6, 210	4, 731	3, 232	2, 259	2, 523	3, 315	2, 110
1929–30	2, 277	1, 711	1, 654	1, 999	2, 637	3, 086	3, 006	2, 928	2, 781	2, 715	2, 376	2, 376
1930–31	1, 839	1, 300	725	832	1, 561	1, 329	1, 274	1, 267	903	764	627	353
1931–32	119	3	4	4	649	1, 587	1, 587	1, 552	1, 479	1, 272	283	57
1932–33	1	2	27	46	0	0	0	0	0	0	0	0
1933–34	0	0	0	0	0	-------	-------	-------	-------	-------	-------	-------

[1] Includes domestic barley in store in public and private elevators in 41 markets and barley afloat in vessels or barges in harbors of lake and seaboard ports. Does not include barley in transit either by rail or water, stocks in mills, or mill elevators attached to mills, or private stocks of barley intended for local use.
[2] Includes United States barley in store at 15 Canadian points or afloat in vessels or barges in the harbors of lake and seaboard ports. Does not include barley in transit to Canadian ports.
[3] Includes practically all Canadian barley held within Canadian boundaries, exclusive of farm and certain mill stocks.
[4] Includes Canadian barley in store and afloat at 10 United States lake and seaboard ports but not Canadian barley in transit on lakes or canals.

Bureau of Agricultural Economics; compiled from weekly reports to the grain, hay, and feed market news service.
Data are for stocks on the Saturday nearest the 1st day of the month.

TABLE 78.—*Barley, excluding flour and malt: International trade, average 1925–26 to 1929–30, annual 1929–30 to 1932–33*

Country	Year beginning July									
	Average, 1925–26 to 1929–30		1929–30		1930–31		1931–32		1932–33 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
United States	31,869	0	21,544	0	10,302	0	5,084	0	9,155	0
Rumania	30,308	0	[2] 63,522	[2] 0	74,095	2	[2] 32,767	[2] 0	23,204	0
Canada	28,724	14	6,396	17	16,603	1	14,449	2	6,750	1
Russia	16,561	0	23,986	0	49,831	0	37,544	0	15,971	0
Argentina	9,355	[3] 6	5,986	-------	11,612	0	13,822	0	17,431	0
Poland	7,120	90	12,476	6	6,091	2	6,550	0	7,355	2
Czechoslovakia	5,301	366	5,293	31	6,252	8	4,121	4	7,603	4
Algeria	4,701	750	5,298	305	3,076	782	1,287	5,656	306	4,405
Tunis	4,291	[3] 477	6,734	79	621	894	1,013	1,158	6,253	80
Chile	2,936	0	1,859	0	1,166	0	1,079	0	595	0
Hungary	2,611	3	4,966	2	1,231	7	108	81	2,853	0
British India	2,169	-------	46	21	261	5	1,793	0	11	-------
Bulgaria	1,650	0	650	0	3,307	0	892	0	276	0
Australia	1,235	1	675	2	3,467	0	3,453	0	[2] 2,852	[2] 0
Yugoslavia [4]	790	[3] 412	491	375	160	306	62	130	27	11
Spain	531	379	330	18	335	0	44	0	118	0
Sweden	507	13	92	2	4	41	41	5	3	0
Egypt	311	213	138	75	5	239	3	660	229	0
Total	150,970	2,724	160,482	933	188,419	2,287	124,112	7,696	100,992	4,503
PRINCIPAL IMPORTING COUNTRIES										
Germany	642	83,542	2,000	102,529	423	36,660	38	34,923	8	8,536
United Kingdom	-------	32,134	-------	29,798	-------	37,827	-------	30,797	-------	26,672
Netherlands	790	14,460	1,066	16,572	1,232	30,204	563	20,030	220	17,798
Belgium	258	13,586	311	16,440	2,200	21,566	3,427	20,327	2,985	19,187
Denmark	2,891	3,494	2,738	7,522	2,569	30,974	990	8,200	931	4,881
Switzerland	0	3,306	0	3,802	1	5,770	2	6,383	2	9,031
Austria	[5] 134	3,163	23	3,800	36	4,644	3	4,350	3	3,866
France	1,044	2,830	693	3,230	87	15,100	34	19,515	9	16,452
Norway	0	1,382	0	1,617	0	2,293	0	1,737	0	345
Irish Free State	430	885	53	1,067	42	595	52	996	-------	645
Greece	0	593	0	874	0	171	0	355	0	43
Estonia	0	244	0	154	0	34	0	0	0	0
Italy	23	209	3	193	0	1,206	0	1,382	1	1,225
Total	6,212	159,828	6,887	187,598	6,590	187,044	5,109	148,995	4,159	108,681

[1] Preliminary.
[2] Monthly Crop Report and Agricultural Statistics.
[3] 3-year average.
[4] Calendar year.
[5] 4-year average.

Bureau of Agricultural Economics; official sources except where otherwise noted.

TABLE 79.—*Barley: Average price per bushel received by producers, United States 1924–25 to 1933–34*

Year	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	68.8	75.7	75.6	81.4	79.7	76.2	82.4	84.8	81.5	76.1	75.9	76.4	76.8
1925–26	73.5	67.1	60.8	57.6	58.0	58.4	59.5	56.3	54.6	54.8	55.1	53.7	62.8
1926–27	55.3	55.0	52.9	54.4	56.0	56.4	58.0	61.3	62.2	64.1	68.4	76.3	56.9
1927–28	71.4	69.0	69.5	66.8	66.8	71.5	73.6	75.4	79.4	81.3	84.5	81.7	71.3
1928–29	77.6	58.9	54.1	55.2	54.5	55.0	56.2	60.5	60.1	58.0	55.3	52.6	60.0
1929–30	55.6	55.8	55.2	54.7	53.8	54.6	53.9	52.5	51.4	51.7	50.5	47.5	54.4
1930–31	40.0	43.6	45.3	41.9	38.3	38.8	36.6	35.3	34.4	35.2	35.5	32.6	41.6
1931–32	30.0	28.9	30.9	31.6	35.5	35.7	35.7	35.8	37.2	37.1	33.7	28.7	32.0
1932–33	24.6	21.1	20.1	18.2	20.1	19.3	18.4	17.9	18.3	23.4	29.9	28.3	22.7
1933–34	47.6	40.2	42.8	40.7	41.6	40.6	------	------	------	------	------	------	------

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; yearly price obtained by weighting monthly prices by monthly marketings.

TABLE 80.—*Barley, No. 2: Weighted average price*[1] *per bushel of reported cash sales, Minneapolis, 1924–25 to 1933–34*

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	80	81	85	81	87	93	94	88	81	84	84	84	84
1925–26	72	66	65	63	65	65	62	62	63	65	64	67	67
1926–27	63	62	65	64	67	69	71	72	77	88	88	81	71
1927–28	77	72	73	77	83	84	87	90	92	93	94	85	84
1928–29	65	63	63	62	62	66	70	67	65	60	60	69	65
1929–30 [2]	62	63	59	60	60	58	57	56	57	56	50	48	59
1930–31 [2]	53	54	52	48	47	44	44	44	48	45	39	42	47
1931–32 [2]	45	50	50	51	51	51	52	53	51	44	35	31	48
1932–33 [2]	31	32	29	31	29	26	25	30	40	45	43	64	39
1933–34 [2]	58	69	67	63	68								

[1] Average of daily prices weighted by car-lot sales.
[2] Special No. 2 barley used, August 1929 to end of table.

Bureau of Agricultural Economics; compiled from Minneapolis Daily Market Record.
Prices 1909–10 to 1923–24 appear in 1932 Yearbook, table 89.

TABLE 81.—*Flaxseed: Acreage, production, value, foreign trade, net supply, etc., United States, 1909–33*

Year	Acreage harvested	Average yield per acre	Production	Price per bushel received by producers Dec. 1 [1]	Farm value, basis Dec. 1 price	Price per bushel of No. 1 flaxseed at Minneapolis, year beginning Aug. 1 [2]	Flaxseed, including linseed oil, in terms of seed, year beginning September [3]			Net supply
							Imports	Exports, domestic and foreign	Net imports	
	1,000 acres	*Bushels*	*1,000 bushels*	*Cents*	*1,000 dollars*	*Cents*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1909	*2,083*	*9.4*	*19,513*							
1909	2,083	9.5	19,699	152.8	30,093	197	6,074	152	5,922	25,621
1910	2,467	5.2	12,718	231.7	29,472	250	12,010	73	11,937	24,655
1911	2,757	7.0	19,370	182.1	35,272	218	7,848	126	7,722	27,092
1912	2,851	9.8	28,073	114.7	32,202	142	3,845	897	2,948	31,021
1913	2,291	7.8	17,853	119.9	21,399	150	9,772	216	9,556	27,409
1914	1,645	8.4	13,749	126.0	17,318	170	12,729	571	12,158	25,907
1915	1,387	10.1	14,030	174.0	24,410	200	14,441	313	14,128	28,158
1916	1,474	9.7	14,296	248.6	35,541	280	10,946	507	10,439	24,735
1917	1,984	4.6	9,164	296.6	27,182	370	14,042	467	13,575	22,739
1918	1,910	7.0	13,369	340.1	45,470	407	9,230	482	8,748	22,117
1919	*1,261*	*5.3*	*6,653*							
1919	1,293	5.2	6,770	442.1	29,932	473	26,483	467	26,016	32,786
1920	1,647	6.6	10,900	232.8	25,375	220	16,174	219	15,955	26,855
1921	1,143	7.1	8,107	165.4	13,411	216	23,389	149	23,240	31,347
1922	1,113	9.5	10,520	207.6	21,836	259	29,009	161	28,848	39,368
1923	2,015	8.2	16,563	212.5	35,192	244	19,557	145	19,412	35,975
1924	*3,435*	*8.2*	*28,246*							
1924	3,535	8.8	31,237	217.9	68,055	263	12,849	124	12,725	43,962
1925	3,022	7.4	22,337	226.4	50,582	253	20,858	148	20,710	43,047
1926	2,736	6.8	18,537	203.2	37,665	225	24,155	112	24,043	42,580
1927	2,763	9.1	25,183	192.5	48,488	221	18,177	120	18,057	43,240
1928	2,611	7.3	19,140	193.9	37,118	229	23,611	106	23,505	42,645
1929	*2,966*	*5.1*	*15,046*							
1929	3,047	5.2	15,910	281.2	44,733	311	18,537	109	18,428	34,338
1930	3,736	5.7	21,287	161.0	34,278	176	9,938	69	9,869	31,156
1931	2,416	4.9	11,798	116.6	13,758	136	10,949	46	10,903	22,701
1932	1,975	5.9	11,671	88.1	10,280	118	9,414	39	9,375	21,046
1933 [4]	1,283	5.3	6,785	159.1	10,797					

[1] Beginning with 1919 prices are weighted average prices for crop marketing season.
[2] The figures shown, 1909–20, are averages of daily closing prices compiled from annual reports of the Minneapolis Chamber of Commerce; beginning 1921 averages of daily prices weighted by car-lot sales, compiled from Minneapolis Daily Market Record.
[3] Compiled from Commerce and Navigation of the United States, 1909–17; Foreign Commerce and Navigation of the United States, 1918; Monthly Summary of Foreign Commerce of the United States June, July, and August issues, 1919–26, January, June, July, and August issues, 1927–33, and official records of the Bureau of Foreign and Domestic Commerce. 1 bushel of flaxseed weighs 56 pounds; 1 bushel of seed yields approximately 2½ gallons of oil; and 1 gallon of oil weighs 7½ pounds.
[4] Preliminary.

Bureau of Agricultural Economics.
Production figures are estimates of the Crop Reporting Board, revised, 1919-28. See introductory text; italic figures are census returns. See 1927 Yearbook, p. 809, for data for earlier years.

TABLE 82.—*Flaxseed: Acreage, yield, production, and weighted average price per bushel received by producers, by States, averages, and annual 1932 and 1933*

State	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1926–30	1932	1933 [1]	Average, 1921–30	1932	1933 [1]	Average, 1926–30	1932	1933 [1]	1932	1933 [2]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Cents*	*Cents*
Wisconsin	9	6	4	11.7	12.0	10.0	104	72	40	93	148
Minnesota	710	689	682	9.6	9.2	6.4	6,566	6,339	4,365	91	163
Iowa	17	19	25	9.9	9.0	7.0	180	171	175	83	159
Missouri	3	2	2	[3] 5.9	5.5	5.5	15	11	11	74	156
North Dakota	1,341	826	430	6.9	3.9	3.9	8,032	3,221	1,677	87	153
South Dakota	572	165	46	7.0	4.7	2.5	3,374	776	115	81	153
Nebraska	14	3	2	8.2	6.0	6.0	99	18	12	72	145
Kansas	31	46	36	6.3	6.5	6.2	195	299	223	75	149
Montana	267	214	54	6.2	3.5	3.0	1,367	749	162	82	142
Wyoming	14	5	2	6.2	3.0	2.5	78	15	5	86	137
United States	2,979	1,975	1,283	7.5	5.9	5.3	20,011	11,671	6,785	88.1	159.1

[1] Preliminary.
[2] Average price for 5 months.
[3] 7-year average.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 83.—*Flaxseed: Production, world and selected countries, 1919–20 to 1933–34*

Crop year	World production, including Russia [1]	Northern Hemisphere production, including Russia	European production, including Russia	Selected countries							
				Argentina	Russia	United States	India	Canada	Poland	Lithuania [2]	Uruguay
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1919–20	86,465	36,877	13,425	49,890	[3] 8,000	6,770	9,400	5,473	556	827	932
1920–21	113,534	52,361	14,894	60,006	9,204	10,900	16,760	7,998	637	1,011	966
1921–22	75,121	38,427	14,424	36,046	9,752	8,107	10,800	4,112	856	909	519
1922–23	98,745	50,236	16,813	47,577	11,043	10,520	17,440	5,008	1,816	1,108	719
1923–24	125,098	65,797	19,664	58,005	13,379	16,563	21,320	7,140	2,129	1,056	1,178
1924–25	131,221	84,460	23,982	45,084	16,960	31,237	18,520	9,695	1,872	1,332	1,542
1925–26	159,128	81,876	32,391	75,113	23,991	22,337	20,040	6,237	2,250	1,571	2,030
1926–27	153,945	71,080	28,861	80,783	20,877	18,537	16,080	5,995	2,472	1,574	1,970
1927–28	158,194	76,715	29,146	82,672	21,814	25,183	16,240	4,885	2,790	1,405	1,954
1928–29	150,000	68,607	30,530	78,377	23,690	19,140	13,920	3,614	2,413	1,000	2,030
1929–30	122,764	69,269	37,776	50,004	28,060	15,910	12,880	2,060	3,173	1,718	3,228
1930–31	155,100	79,376	37,815	70,264	29,957	21,287	15,200	4,399	2,335	1,532	5,056
1931–32	157,500	63,135	32,631	89,067	[3] 27,000	11,798	15,080	2,465	1,941	1,003	4,837
1932–33				52,304		11,671	16,640	2,719	1,640	626	1,475
1933–34				52,635		6,785	16,120	632		823	3,322

[1] Excludes a few minor producing countries for which no statistics are available and which do not enter into world trade.
[2] Flax and hemp.
[3] Estimate of Bureau of Agricultural Economics.

Bureau of Agricultural Economics; official sources and International Institute of Agriculture.

Production figures refer to the year of harvest. Harvests of the Northern Hemisphere countries are combined with those of the Southern Hemisphere, which immediately follow; thus, for 1932–33 the crop harvested in the Northern Hemisphere countries in 1932 is combined with the Southern Hemisphere harvest which begins late in 1932 and ends early in 1933.

TABLE 84.—*Flax: Acreage and production in specified countries, average 1921–22 to 1925–26, annual 1930–31 to 1932–34*

Country	Acreage					Seed production					Fiber production				
	Average 1921–22 to 1925–26	1930–31	1931–32	1932–33	1933–34 [1]	Average 1921–22 to 1925–26	1930–31	1931–32	1932–33	1933–34 [1]	Average 1921–22 to 1925–26	1930–31	1931–32	1932–33	1933–34 [1]
NORTHERN HEMISPHERE															
North America:	*Acres*	*Acres*	*Acres*	*Acres*	*Acres*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Canada	769, 552	581, 800	627, 430	461, 500	243, 600	6, 438	4, 399	2, 465	2, 719	632	----	----	----	----	----
United States	2, 165, 600	3, 736, 000	2, 416, 000	1, 975, 000	1, 283, 000	17, 753	21, 287	11, 798	11, 671	6, 785	----	----	----	----	----
Total North America	2, 935, 152	4, 317, 800	3, 043, 430	2, 436, 500	1, 526, 600	24, 191	25, 686	14, 263	14, 390	7, 417	----	----	----	----	----
Europe:															
United Kingdom:															
England and Wales	7, 801	3, 900	3, 186	1, 311	----	----	----	----	----	----	----	----	----	----	----
Northern Ireland	36, 267	28, 507	7, 440	6, 093	9, 784	----	----	----	----	----	12, 123	12, 013	3, 091	2, 565	4, 867
Irish Free State	8, 288	3, 950	647	458	----	----	----	----	----	----	2, 662	1, 575	----	----	----
Sweden [2]	5, 651	1, 322	----	----	----	6	2	----	----	----	685	220	----	----	----
Netherlands	27, 839	37, 317	16, 185	4, 930	11, 619	324	358	139	----	----	16, 166	22, 957	9, 918	3, 395	7, 496
Belgium	47, 290	56, 265	36, 032	21, 000	27, 000	410	417	326	202	239	40, 004	32, 499	25, 370	15, 078	37, 180
France	45, 508	75, 373	25, 619	22, 644	27, 067	363	749	233	224	250	29, 123	44, 753	13, 788	12, 100	15, 693
Spain	[3] 3, 856	2, 132	2, 231	----	----	48	13	11	----	----	[3] 1, 278	1, 267	1, 226	----	----
Italy	51, 700	27, 132	24, 287	11, 675	9, 938	451	223	184	124	90	5, 159	5, 573	4, 837	4, 888	3, 990
Germany	104, 027	27, 309	16, 368	11, 149	12, 068	----	----	----	----	----	----	----	----	----	----
Austria	9, 055	13, 000	12, 891	8, 000	7, 000	55	34	33	16	17	7, 433	12, 694	10, 701	5, 993	6, 305
Czechoslovakia	56, 438	31, 000	22, 931	16, 331	18, 000	349	169	100	95	105	28, 397	12, 816	7, 469	7, 243	7, 931
Hungary	6, 918	36, 169	46, 851	15, 057	19, 000	48	341	310	95	----	5, 237	86, 912	73, 687	73, 687	28, 532
Yugoslavia	33, 179	32, 518	30, 764	26, 378	----	----	55	----	----	----	18, 465	25, 792	23, 193	----	----
Bulgaria	635	736	1, 759	998	1, 500	3	5	19	6	11	188	239	176	164	190
Rumania	40, 021	43, 527	68, 560	54, 080	45, 000	224	393	523	374	394	[4] 10, 770	5, 933	15, 756	12, 322	----
Poland	229, 360	285, 423	252, 188	231, 478	236, 722	1, 785	2, 335	1, 941	1, 640	----	87, 774	97, 298	75, 611	56, 431	----
Lithuania [2]	144, 360	204, 000	139, 000	106, 000	135, 000	1, 195	1, 532	1, 003	626	823	62, 119	64, 188	46, 628	31, 442	39, 971
Latvia [2]	132, 076	128, 000	104, 000	78, 000	103, 000	783	733	499	352	485	46, 964	42, 395	28, 660	20, 812	27, 326
Estonia	75, 365	80, 424	45, 296	36, 222	41, 000	387	499	253	153	244	22, 187	23, 744	13, 056	8, 449	11, 369
Finland [5]	14, 761	14, 000	10, 000	10, 000	10, 000	----	----	----	----	----	3, 239	3, 527	----	3, 282	----
Russia, including Asiatic Russia	2, 799, 900	5, 551, 102	7, 574, 000	7, 784, 000	6, 348, 000	15, 025	29, 957	----	----	----	644, 969	903, 908	----	1,102,315	1, 234, 593
Total European countries reporting all years, including Asiatic Russia	3, 829, 808	6, 643, 234	8, 404, 054	8, 417, 657	7, 061, 698	3, 996	4, 361	2, 650	2, 172	2, 658	345, 514	359, 156	236, 214	1,288,131	1, 425, 444

See footnotes at end of table.

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TABLE 84.—*Flax: Acreage and production in specified countries, average 1921–22 to 1925–26, annual 1930–31 to 1933–34*—Continued

Country	Acreage					Seed production					Fiber production				
	Average 1921–22 to 1925–26	1930–31	1931–32	1932–33	1933–34 [1]	Average 1921–22 to 1925–26	1930–31	1931–32	1932–33	1933–34 [1]	Average 1921–22 to 1925–26	1930–31	1931–32	1932–33	1933–34 [1]
NORTHERN HEMISPHERE—contd.	*Acres*	*Acres*	*Acres*	*Acres*	*Acres*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Morocco	40,844	58,046	89,000	53,487	----------	363	448	932	369	----------	----------	----------	----------	----------	----------
Algeria	643	494	----------	----------	----------	7	8	----------	----------	----------	[4] 441	----------	----------	----------	----------
Tunis	5,996	5,411	5,000	----------	----------	30	----------	----------	----------	----------	----------	----------	----------	----------	----------
Egypt	3,181	2,659	2,698	2,346	3,472	31	34	36	28	49	2,090	1,702	1,178	1,501	2,494
India	3,216,200	2,802,000	3,008,000	3,301,000	3,239,000	17,624	15,200	15,080	16,640	16,120	----------	----------	----------	----------	----------
Japanese Empire:															
Japan	49,911	21,226	----------	----------	----------	304	119	----------	----------	----------	61,242	34,308	----------	----------	----------
Chosen	3,386	3,846	3,634	----------	----------	----------	----------	----------	----------	----------	1,141	1,523	991	----------	----------
Total Northern Hemisphere countries reporting all years	10,025,185	13,823,739	14,547,182	14,157,503	11,830,770	45,842	45,281	32,029	33,230	26,244	347,604	360,858	237,392	1,289,632	1,427,938
Estimated Northern Hemisphere total	10,150,000	13,848,000	14,592,000	14,192,042	----------	64,159	79,500	63,500	66,075	----------	1,110,946	1,439,500	1,197,600	1,375,500	----------
SOUTHERN HEMISPHERE															
Chile	913	----------	----------	----------	----------	16	----------	----------	----------	----------	[3] 734	----------	----------	----------	----------
Uruguay	116,279	401,851	442,765	337,175	266,292	1,198	5,056	4,837	1,475	3,322	----------	----------	----------	----------	----------
Argentina [6]	5,224,757	6,628,000	8,178,000	5,654,809	6,853,393	52,365	70,264	89,067	52,304	52,635	----------	----------	----------	----------	----------
New Zealand	8,693	12,200	1,765	----------	----------	121	175	26	----------	----------	----------	----------	----------	----------	----------
Total Southern Hemisphere countries reporting all years	5,341,036	7,029,851	8,620,765	5,991,984	7,119,685	52,365	70,264	89,067	53,779	55,957	----------	----------	----------	----------	----------
Total Northern and Southern Hemisphere countries reporting all years	15,366,221	20,853,590	23,167,947	20,149,487	18,950,455	98,207	115,545	121,096	87,009	82,201	347,604	360,858	237,392	1,289,632	1,427,938
Estimated world total [7]	15,502,000	21,522,000	23,600,000	20,700,000	----------	117,863	155,100	157,500	125,500	----------	1,111,800	1,440,000	1,198,000	1,375,500	----------

[1] Preliminary. [2] Flax and hemp. [3] 4-year average. [4] 2-year average.
[5] Where changes in territory have occurred averages are estimates for territory within present boundary.
[6] Acreage figures are for area sown; figures of area harvested are not available for all years, but over a 16-year period the harvested area averaged 10 percent below the sown area.
[7] Excludes a few minor producing countries for which no statistics are available and which do not enter into world trade.

Bureau of Agricultural Economics; official sources and International Institute of Agriculture.

Both acreage and production figures refer to the year of harvest. Harvests of the Northern Hemisphere are combined with those of the Southern Hemisphere which immediately follow; thus, for 1930–31 the crop harvested in the Northern Hemisphere countries in 1930 is combined with the Southern Hemisphere harvest which begins late in 1930 and ends early in 1931.

TABLE 85.—*Flaxseed: Monthly marketings by farmers, as reported by about 3,500 mills and elevators, United States, 1923–24 to 1932–33*

Year	Percentage of receipts during—												
	July [1]	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Year
	Pct.	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*
1923–24	1.1	10.0	30.7	27.3	12.1	6.0	2.6	2.3	2.0	1.5	2.1	2.3	100.0
1924–25	.5	5.3	23.0	34.5	17.8	6.7	3.8	2.7	1.8	1.4	1.2	1.3	100.0
1925–26	1.1	11.1	34.3	23.5	12.4	5.6	2.7	2.0	1.8	1.5	1.9	2.1	100.0
1926–27	1.4	12.0	25.5	32.5	11.2	6.3	2.4	2.3	1.7	.9	1.7	2.1	100.0
1927–28	1.0	6.1	32.9	33.4	10.5	5.3	3.0	1.9	1.9	1.2	1.7	1.1	100.0
1928–29	1.1	7.2	31.1	35.3	11.6	5.3	2.1	1.2	1.4	1.0	1.5	1.2	100.0
1929–30	1.9	19.9	35.6	23.9	9.1	3.3	1.3	1.1	1.0	.8	1.0	1.1	100.0
1930–31	2.2	21.3	31.4	18.5	9.0	4.3	2.6	2.5	2.0	2.3	2.1	1.8	100.0
1931–32	6.4	31.0	26.9	17.0	5.9	2.8	2.0	2.0	1.4	1.4	1.8	1.4	100.0
1932–33	3.7	26.8	28.2	15.1	6.9	4.7	3.3	1.6	1.4	2.0	2.9	3.4	100.0

[1] July marketings are composed of receipts of the current year's crop from Kansas, Nebraska, Iowa, and other States in the southern part of the flax belt and receipts of the previous year's crop from the Dakotas Minnesota, and Montana.

Bureau of Agricultural Economics.

TABLE 86.—*Flaxseed: Receipts at Minneapolis, by months, 1924–25 to 1933–34*

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
	1,000 bu.	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*
1924–25	269	2,265	3,475	2,781	1,375	1,244	750	671	374	402	442	286	14,334
1925–26	1,094	3,331	2,745	1,107	722	375	276	320	357	431	360	294	11,412
1926–27	830	1,539	2,905	1,103	669	415	318	273	169	257	277	145	8,900
1927–28	441	4,465	3,894	1,065	490	716	495	471	311	439	457	143	13,387
1928–29	652	3,454	3,690	1,278	601	373	328	328	255	244	330	180	11,713
1929–30	1,249	2,939	1,759	624	403	180	116	133	142	390	313	162	8,410
1930–31	2,436	2,295	1,213	912	472	401	368	449	359	355	511	154	9,925
1931–32 [1]	2,110	1,476	840	321	264	161	98	97	103	164	168	66	5,868
1932–33	1,994	1,255	696	216	168	329	72	67	134	352	307	108	5,698
1933–34	1,010	1,115	335	202	119	-------	-------	-------	-------	-------	-------	-------	-------

[1] Beginning January 1932, figures are from the Minneapolis Daily Market Record and are preliminary.

Bureau of Agricultural Economics; compiled from annual reports of the Minneapolis Chamber of Commerce.

TABLE 87.—*Flaxseed: Commercial stocks, 1926–27 to 1933–34*

DOMESTIC FLAXSEED IN UNITED STATES [1]

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1926–27	-------	-------	-------	-------	-------	2,684	2,328	2,089	2,014	1,834	1,396	1,445
1927–28	909	584	1,583	5,353	4,703	4,247	3,542	2,816	2,178	1,691	882	781
1928–29	615	317	704	2,721	1,343	1,397	1,142	780	681	547	398	434
1929–30	370	159	924	1,179	610	917	867	740	696	589	519	433
1930–31	314	467	1,903	2,202	1,431	1,371	1,357	1,273	1,205	972	784	786
1931–32	672	745	1,383	1,920	1,585	873	639	492	555	686	824	901
1932–33	763	1,596	2,668	2,095	1,150	1,212	1,218	1,217	1,140	1,242	909	960
1933–34	875	1,117	1,834	1,452	984	-------	-------	-------	-------	-------	-------	-------

CANADIAN FLAXSEED IN CANADA [2]

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1926–27	-------	-------	-------	-------	-------	3,188	3,319	3,427	3,472	2,947	2,696	2,098
1927–28	1,972	1,661	1,403	1,899	2,702	2,975	3,046	3,085	2,938	2,787	2,288	1,770
1928–29	1,327	534	500	1,236	1,319	1,528	1,406	1,304	1,293	1,126	932	1,619
1929–30	419	352	780	1,230	1,275	1,113	1,049	982	973	849	693	471
1930–31	434	449	1,003	1,904	2,404	2,073	2,080	2,104	2,081	1,855	1,253	1,126
1931–32	742	758	857	1,588	1,549	1,463	1,396	1,363	1,383	1,267	1,424	1,358
1932–33	1,280	1,221	1,362	1,437	1,583	1,431	1,472	1,458	1,358	1,393	1,285	1,140
1933–34	1,050	1,006	984	929	731	-------	-------	-------	-------	-------	-------	-------

[1] Includes domestic flaxseed in store in public and private elevators in 41 markets and flaxseed afloat in vessels or barges in harbors of lake and seaboard ports. Does not include flaxseed in transit either by rail or water, stocks in mills, or mill elevators attached to mills, or private stocks of flaxseed intended for local use.

[2] Includes practically all Canadian flaxseed held within Canadian boundaries, exclusive of farm and certain mill stocks.

Bureau of Agricultural Economics; compiled from weekly reports to the grain, hay, and feed market news service.

Data are for stocks on the Saturday nearest the 1st day of the month.

TABLE 88.—*Flaxseed: International trade, average 1925–29, annual 1929–32*

Country	Calendar year: Average, 1925–29		1929		1930		1931		1932 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Argentina	63, 699	0	63, 677	0	46, 047	0	74, 022	1	79, 823	0
British India	9, 442	763	10, 005	876	10, 445	736	4, 500	--------	3, 088	--------
Canada	2, 828	568	850	1, 374	1, 397	809	1, 045	346	367	455
Uruguay	2, 084	0	2, 201	0	3, 116	0	5, 236	0	3, 087	0
Lithuania	811	0	971	0	792	0	439	0	304	0
Latvia	644	560	604	682	423	304	205	161	96	136
Morocco	363	0	359	0	318	0	671	0	--------	0
Eritrea [2]	188	0	20	0	37	0	19	0	--------	0
China	117	0	1	0	23	0	170	0	88	0
Estonia	86	31	113	42	99	3	7	1	2	8
Rumania	56	9	43	44	78	0	384	0	207	0
Tunis	47	0	39	0	25	0	15	0	59	0
Total	80, 365	1, 931	78, 883	3, 018	62, 810	1, 852	86, 713	509	87, 121	599
PRINCIPAL IMPORTING COUNTIRES										
United States	0	20, 540	0	24, 243	0	12, 662	0	14, 480	0	7, 919
Netherlands	208	13, 639	264	14, 195	260	10, 029	88	16, 524	135	17, 700
Germany	80	13, 602	148	12, 439	47	9, 274	25	13, 404	35	17, 572
United Kingdom	0	13, 439	0	11, 359	0	8, 915	0	13, 517	0	14, 568
France	20	7, 368	29	8, 434	27	7, 499	30	10, 380	13	9, 265
Belgium	301	4, 052	373	4, 502	121	2, 990	366	6, 611	248	6, 579
Italy	1	2, 380	2	2, 324	0	2, 091	0	2, 412	0	2, 702
Sweden	0	1, 477	0	1, 384	0	1, 425	0	1, 884	0	1, 708
Australia [2]	0	957	0	1, 498	0	605	0	555	0	--------
Czechoslovakia	10	885	19	1, 112	33	796	12	1, 041	6	1, 426
Denmark	0	696	0	576	0	643	0	745	0	953
Spain	3	663	0	748	0	749	0	832	0	922
Norway	0	602	0	578	0	637	0	515	0	721
Poland	275	522	573	818	54	267	13	488	6	485
Japan	0	464	2	626	0	224	1	330	0	263
Finland	0	222	0	314	0	141	0	123	0	135
Hungary	27	92	78	126	263	188	75	4	17	53
Austria	0	15	0	17	1	16	0	19	0	12
Total	925	81, 615	1, 488	85, 293	806	59, 151	610	83, 864	460	82, 983

[1] Preliminary.
[2] International Yearbook of Agricultural Statistics.

Bureau of Agricultural Economics; official sources except where otherwise noted.

TABLE 89.—*Flaxseed: Average price per bushel received by producers, United States, 1924–25 to 1933–34*

Year	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	210. 2	201. 2	210. 8	222. 7	235. 8	271. 8	275. 3	267. 8	244. 7	251. 8	246. 8	227. 6	219. 2
1925–26	229. 5	227. 9	228. 9	228. 1	232. 1	224. 5	216. 4	202. 9	207. 0	205. 4	203. 9	208. 7	226. 2
1926–27	215. 7	211. 3	197. 5	195. 5	196. 4	193. 0	195. 7	195. 1	196. 1	205. 7	204. 7	198. 4	203. 1
1927–28	203. 7	197. 1	191. 2	184. 2	185. 3	188. 4	189. 9	194. 8	198. 4	210. 5	209. 0	195. 5	193. 5
1928–29	181. 7	181. 6	198. 1	198. 1	205. 4	211. 1	218. 4	219. 2	216. 4	214. 7	217. 0	233. 2	194. 5
1929–30	259. 5	285. 4	300. 5	285. 1	287. 7	279. 8	275. 0	261. 5	263. 7	245. 9	245. 6	192. 7	280. 6
1930–31	191. 9	168. 1	152. 2	133. 6	137. 6	131. 7	126. 2	130. 4	128. 6	129. 9	120. 1	132. 6	158. 1
1931–32	120. 4	113. 1	106. 5	121. 9	118. 7	116. 1	116. 0	118. 7	116. 1	106. 7	86. 2	80. 8	112. 5
1932–33	79. 3	88. 1	87. 7	87. 1	82. 8	90. 8	87. 1	88. 0	94. 8	118. 6	136. 3	188. 8	91. 9
1933–34	163. 0	164. 4	149. 0	155. 1	151. 1	------	------	------	------	------	------	------	--------

Bureau of Agricultural Economics; based on returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; yearly price obtained by weighting monthly prices by monthly marketings.

TABLE 90.—*Flaxseed, No. 1: Weighted average price*[1] *per bushel of reported cash sales, Minneapolis 1924–25 to 1933–34*

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	244	226	240	258	284	315	312	297	279	280	268	249	263
1925–26	254	259	258	256	261	250	243	232	234	230	233	244	253
1926–27	238	233	221	222	224	223	225	222	224	234	225	223	225
1927–28	222	221	213	213	215	224	227	233	236	246	238	221	221
1928–29	205	209	228	235	239	245	255	249	245	245	248	276	229
1929–30	279	323	332	324	322	308	305	292	292	268	271	232	311
1930–31	200	190	180	165	161	157	156	158	157	155	148	164	176
1931–32	141	137	132	146	143	141	140	140	135	121	105	98	136
1932–33	101	113	113	106	109	116	110	113	128	143	172	205	118
1933–34	188	188	180	177	177								

[1] Average of daily prices weighted by car-lot sales.

Bureau of Agricultural Economics; compiled from Minneapolis Daily Market Record.
Prices 1899–1900 to 1923–24 appear in 1932 Yearbook, table 100.

TABLE 91.—*Flaxseed crushed and linseed oil produced, United States, 1919–20 to 1932–33*

Year	Flaxseed crushed					Oil produced				
	October-December	January-March	April-June	July-September	Total	October-December	January-March	April-June	July-September	Total
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1919–20	7,684	6,336	6,407	6,542	26,969	139,960	117,226	121,407	126,138	504,731
1920–21	6,341	6,343	6,332	5,812	24,828	120,502	118,787	118,887	107,716	465,892
1921–22	7,539	6,713	3,441	5,583	23,276	137,528	124,941	70,239	102,581	435,289
1922–23	8,602	8,292	8,689	8,223	33,806	158,753	155,148	178,267	154,588	646,756
1923–24	8,970	9,575	9,434	7,550	35,529	165,560	177,583	176,187	139,862	659,192
1924–25	11,530	12,516	9,128	7,822	40,996	211,954	229,544	169,980	146,306	757,784
1925–26	11,798	10,651	7,767	9,500	39,716	217,992	194,607	144,950	174,057	731,606
1926–27	11,085	11,037	8,963	9,051	40,136	206,496	202,162	167,232	169,274	745,164
1927–28	12,699	11,885	9,608	7,603	41,795	238,046	223,751	179,532	141,889	783,218
1928–29	11,191	10,839	9,962	10,321	42,313	206,273	202,353	187,019	191,977	787,622
1929–30	9,947	7,966	7,270	5,887	31,070	182,228	145,970	130,863	108,236	567,297
1930–31	7,391	6,571	7,205	7,610	28,777	131,257	118,417	130,635	141,205	521,514
1931–32	7,112	5,393	3,584	3,739	19,828	130,479	99,783	67,296	68,503	366,061
1932–33 [1]	4,998	4,365	4,268	6,074	19,705	90,987	79,595	79,035	113,413	363,030

[1] Preliminary.

Bureau of Agricultural Economics; compiled from reports of the Bureau of the Census, animal and vegetable fats and oils.

TABLE 92.—*Linseed oil, raw: Average car-lot price per gallon in barrels, New York, 1924–25 to 1933–34*

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	102	102	102	108	110	117	116	111	104	105	106	98	107
1925–26	102	103	[1] 99	96	95	87	85	80	81	81	84	89	90
1926–27	90	83	81	81	80	79	78	77	81	84	84	80	82
1927–28	80	77	74	73	72	74	74	74	74	78	77	75	75
1928–29	73	74	76	77	75	75	76	76	76	77	79	92	77
1929–30	96	116	118	111	110	105	105	105	106	105	105	104	107
1930–31	97	78	74	70	68	66	69	71	68	66	64	68	72
1931–32	63	57	55	56	53	50	46	50	49	46	44	42	51
1932–33	41	45	47	50	52	55	54	56	58	65	70	81	56
1933–34	79	78	72	72	71								

[1] Beginning October 1925, prices are quoted on pound basis and have been converted to price per gallon by multiplying by 7.5.

Bureau of Agricultural Economics; compiled from Oil, Paint and Drug Reporter, average of weekly ranges.
Data for 1910–11 to 1923–24 are available in the 1930 Yearbook, p. 666, table 103.

TABLE 93.—*Linseed oil: International trade, average 1925–29, annual 1929–32*

Country	Average, 1925–29		1929		1930		1931		1932[1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Netherlands	158,136	833	172,702	1,320	172,024	943	161,433	952	126,030	455
United Kingdom	49,400	47,546	44,925	69,418	35,157	96,051	32,258	83,005	30,271	54,031
Belgium	23,503	2,303	29,840	2,917	29,324	1,237	22,743	1,518	34,744	1,348
Sweden	1,267	668	1,751	911	1,435	312	1,952	469	1,228	684
Total	232,306	51,350	249,218	74,566	237,940	98,543	218,386	85,944	192,273	56,518
PRINCIPAL IMPORTING COUNTRIES										
Germany	8,343	43,213	14,277	42,216	9,288	33,931	14,680	15,517	6,700	35,301
Switzerland	27	13,286	27	13,341	49	12,981	38	19,474	3	19,667
Brazil	0	9,558	0	6,909	0	5,758	0	4,214	0	2,909
Austria	459	8,997	363	9,148	165	9,104	90	12,563	49	9,167
France	4,378	8,138	5,232	3,262	11,278	5,480	9,608	6,423	10,386	3,448
United States	2,351	7,946	2,208	9,961	1,592	2,125	1,094	235	842	25
Finland	0	5,380	0	4,795	0	5,843	0	6,648	0	4,889
Dutch East Indies	0	5,161	0	5,753	0	5,448	0	3,895	0	[4] 2,008
Australia[2]	25	4,968	18	3,031	24	1,643	27	2,277	--------	--------
Egypt	3	4,935	2	4,686	--------	1,555	--------	697	--------	836
Union of South Africa	0	4,770	0	5,015	0	4,442	0	5,165	0	3,713
Hungary	12	4,246	0	1,475	989	1,225	135	823	312	163
New Zealand	2	3,789	0	3,521	0	2,892	0	3,020	0	2,262
Italy	403	3,574	372	3,455	244	2,210	169	6,436	216	4,079
Norway	54	3,314	168	4,312	64	1,703	86	9,186	120	2,547
Chile	4	2,712	11	3,474	22	2,605	3	1,931	--------	357
Irish Free State	0	2,319	0	2,926	0	3,132	0	2,941	0	2,853
British India	728	2,092	1,259	1,874	922	1,555	358	1,548	343	1,675
Denmark	419	2,081	441	2,271	3	2,424	0	1,795	34	812
British Malaya	126	1,550	177	1,579	85	1,380	77	1,306	69	725
Bulgaria	0	1,484	0	1,620	0	1,353	0	1,352	0	999
Yugoslavia	52	1,390	4	1,080	1	1,028	1	2,177	1	1,045
Czechoslovakia	257	1,369	1,155	676	542	578	106	558	507	139
China	0	1,242	0	1,476	0	903	0	1,462	98	1,269
Philippine Islands	0	1,210	0	1,636	0	1,621	0	1,322	0	1,690
Canada	49	819	18	1,342	33	1,109	14	1,048	12	806
Argentina	265	743	64	746	35	646	36	488	39	290
Tunis	0	668	0	733	[2] 0	[2] 912	[2] 0	[2] 870	--------	--------
Greece	[3] 55	419	3	301	--------	263	--------	451	--------	364
Total	18,012	151,373	25,799	142,614	25,336	115,849	26,522	115,822	19,731	104,038

[1] Preliminary.
[2] International Yearbook of Agricultural Statistics.
[3] 3-year average.
[4] Java and Madura only.

Bureau of Agricultural Economics; official sources except where otherwise noted. Conversions made on the basis of 7.5 pounds to the gallon.

TABLE 94.—*Linseed meal, 34 percent protein: Average price per ton, Minneapolis, by months, 1924–25 to 1933–34*

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924–25	44.00	43.62	45.38	44.30	46.38	47.00	44.50	39.88	38.75	41.30	43.00	43.31	43.45
1925–26	43.80	42.88	42.30	42.88	44.50	46.40	47.62	45.50	48.25	49.00	46.38	46.60	45.51
1926–27	44.81	43.12	43.70	43.88	44.00	45.60	47.35	47.75	48.10	47.25	45.90	45.50	45.58
1927–28	46.25	45.95	45.30	46.40	47.45	48.00	49.00	50.80	51.40	53.00	51.10	49.10	48.65
1928–29	45.75	47.55	53.85	54.90	57.00	56.90	59.00	56.60	52.10	51.90	51.20	53.05	53.32
1929–30	53.10	56.40	55.70	55.10	55.00	54.10	51.75	50.30	54.75	48.70	44.75	42.75	51.87
1930–31	42.20	42.10	40.25	38.90	37.90	36.40	34.65	31.60	30.75	27.70	24.95	25.60	34.42
1931–32	26.20	25.75	25.70	31.40	32.10	30.15	28.75	28.00	27.30	24.25	21.40	20.40	26.78
1932–33	21.40	22.40	21.50	19.80	19.15	19.70	19.30	20.00	21.65	25.20	27.50	[1] 37.40	22.92
1933–34	36.10	31.75	31.70	31.90	31.65	------	------	------	------	------	------	------	------

[1] Beginning July 1933, quoted as 37 percent protein.

Bureau of Agricultural Economics. Compiled from reports made to the Bureau. Quoted "per ton, bagged, in car lots, sight-draft basis."

TABLE 95.—*Rice, rough: Acreage, production, value, shipments, and foreign trade, United States, 1909–33*

Year	Acreage harvested	Average yield per acre	Production	Price per bushel received by producers Dec. 1[1]	Farm value, basis Dec. 1 price	Shipments from United States to Alaska, Hawaii, and Puerto Rico	Foreign trade, mostly cleaned rice, but including rice bran, meal, and broken rice, reduced to rough basis, year beginning July[2]		
							Domestic exports	Imports	Net balances[3]
	1,000 acres	*Bushels*	*1,000 bushels*	*Cents*	*1,000 dollars*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1909	610	33.8	20,607	79.5	16,392	4,276	964	8,114	−6,857
1910	723	33.9	24,510	67.8	16,624	4,606	1,082	7,516	−6,211
1911	696	32.9	22,934	79.7	18,274	4,890	1,420	6,842	−5,047
1912	723	34.7	25,054	93.5	23,423	4,806	1,401	7,996	−6,139
1913	827	31.1	25,744	85.8	22,090	5,244	807	10,447	−9,000
1914	694	34.1	23,649	92.4	21,849	4,640	2,789	9,979	−5,059
1915	803	36.1	28,947	90.6	26,212	5,191	4,391	9,516	−2,540
1916	869	47.0	40,861	88.9	36,311	5,818	6,529	7,778	+348
1917	981	35.4	34,739	189.6	65,879	4,878	7,069	16,418	−6,026
1918	1,119	34.5	38,606	191.8	74,042	5,995	6,953	13,094	+1,644
1919	1,070	39.9	42,689	266.0	113,570	5,547	17,402	6,477	+14,401
1920	1,299	39.8	51,648	118.1	61,006	6,614	15,871	3,485	+14,603
1921	990	39.7	39,274	94.8	37,239	7,179	19,494	2,650	+18,773
1922	1,053	39.6	41,663	92.9	38,686	8,290	13,344	2,503	+12,018
1923	874	38.0	33,238	110.2	36,615	9,094	8,199	1,376	+7,322
1924	837	38.9	32,593	137.6	44,852	8,152	4,033	2,076	+2,535
1925	849	38.6	32,736	149.1	48,809	8,049	1,734	4,747	−2,514
1926	1,006	41.2	41,415	111.6	46,205	8,743	10,957	2,558	+8,844
1927	1,024	43.4	44,422	89.0	39,554	9,183	11,152	1,588	+9,852
1928	962	45.1	43,434	89.9	39,029	10,131	14,137	1,325	+13,272
1929	860	47.2	40,604	99.5	40,384	10,342	10,423	1,124	+9,453
1930	961	46.7	44,923	78.4	35,209	10,864	10,116	1,278	+8,965
1931	964	46.5	44,873	49.6	22,247	10,398	9,890	737	+9,255
1932	868	46.6	40,408	41.8	16,910	12,130	6,398	780	+5,687
1933[4]	769	46.3	35,619	77.9	27,765				

[1] From 1924–32, prices are average prices for the crop marketing season.
[2] Compiled from Commerce and Navigation of the United States, 1909–17; Foreign Commerce and Navigation of the United States, 1918; Monthly Summary of Foreign Commerce of the United States, June issues, 1919–26; January and June issues, 1927–33, and official records of the Bureau of Foreign and Domestic Commerce.
[3] The difference between the total exports (domestic exports plus reexports) and total imports. Net exports indicated by +; net imports indicated by —.
[4] Preliminary.

Bureau of Agricultural Economics.
Production figures are estimates of the Crop Reporting Board, revised 1919–28. See introductory text See 1927 Yearbook, p. 819, for data for earlier years.

TABLE 96.—*Rice, rough: Acreage, yield, production, and average price per bushel received by producers, by States, averages, and annual 1932 and 1933*

State	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average 1926–30	1932	1933[1]	Average 1921–30	1932	1933[1]	Average 1926–30	1932	1933[1]	1932	1933[2]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Bu.*	*Bu.*	*Bu.*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Cents*	*Cents*
Arkansas	175	163	153	46.9	51.0	48.0	8,501	8,313	7,344	38	78
Louisiana	493	410	369	36.0	39.0	40.0	18,578	15,990	14,760	43	78
Texas	165	185	141	43.8	49.0	53.0	8,160	9,065	7,473	44	81
California	129	110	106	56.1	64.0	57.0	7,720	7,040	6,042	41	74
United States	963	868	769	41.8	46.6	46.3	42,960	40,408	35,619	41.8	77.9

[1] Preliminary.
[2] Dec. 1 price.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 97.—*Rice, in terms of milled rice: Production, world and selected countries, 1909–10 to 1933–34*

Crop year	Estimated world production, exclusive of China	Production in selected countries [1]								
		India	Japan	Chosen	Taiwan	Indo-China	Java and Madura [2]	Siam [3]	Philippines	United States
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*
1909–10	107,000	63,869	16,474	2,343	1,455		5,723	3,734	1,164	572
1910–11	106,000	64,552	14,650	3,269	1,316		5,738	3,466	1,267	681
1911–12	109,000	63,943	16,246	3,634	1,410		6,170	4,533	717	637
1912–13	109,000	63,802	15,778	3,413	1,271	6,614	5,842	4,561	1,512	696
1913–14	113,000	64,555	15,789	3,804	1,610	8,051	6,440	4,994	1,404	715
1914–15	113,000	61,109	17,909	4,439	1,448	9,521	6,339	4,708	1,100	657
1915–16	124,000	73,315	17,569	4,036	1,504	7,921	6,451	4,786	1,289	804
1916–17	129,000	78,521	18,363	4,377	1,461	6,733	6,409	5,011	1,745	1,135
1917–18	132,000	80,559	17,143	4,261	1,519	6,313	7,204	5,133	2,210	965
1918–19	105,000	54,466	17,184	4,765	1,455	6,302	7,272	4,642	2,085	1,072
1919–20	123,000	71,734	19,107	3,974	1,547	6,532	7,936	3,114	2,243	1,186
1920–21	117,000	61,949	19,857	4,639	1,521	6,283	6,761	5,868	2,560	1,435
1921–22	127,000	74,240	17,335	4,500	1,563	7,931	5,964	5,806	2,681	1,091
1922–23	133,000	75,495	19,067	4,717	1,711	7,629	7,280	5,954	2,703	1,157
1923–24	118,000	63,164	17,418	4,767	1,529	7,206	7,284	6,034	2,566	923
1924–25	127,000	69,601	17,960	4,153	1,909	7,801	7,563	6,779	2,818	905
1925–26	127,000	68,851	18,756	4,641	2,024	7,951	7,184	5,752	2,949	909
1926–27	126,000	66,483	17,465	4,807	1,952	8,255	7,732	7,169	3,083	1,150
1927–28	127,000	63,244	19,510	5,434	2,167	8,850	7,942	6,261	3,082	1,234
1928–29	131,000	72,005	18,945	4,245	2,135	7,822	7,679	5,325	3,073	1,206
1929–30	127,000	69,736	18,710	4,304	2,036	8,081	7,453	5,315	3,184	1,127
1930–31	137,000	72,124	21,009	6,026	2,315	8,138	8,053	6,620	3,064	1,248
1931–32 [4]	131,000	73,893	17,346	4,987	2,368	7,638	7,732	5,581	2,920	1,246
1932–33 [4]	131,000	68,667	18,972	5,066	2,804	8,117	8,188	7,018		1,122
1933–34 [4]			20,723	4,492			8,036			989

[1] China is an important producing country, but official statistics are not available. The Shanghai office of the Bureau of Agricultural Economics has made the following estimates of production in China: 1930, 50,600,000 short tons; 1931, 38,180,000 tons; 1932, 49,000,000 tons; 1933, 46,800,000 tons.

[2] Estimates of the production of rice on nonirrigated land are not available prior to 1917–18. Estimates for the years 1909–10 to 1916–17 as given here are for the production on irrigated land. Estimates for the years 1917–18 to 1933–34 are for the total production.

[3] Estimated figures obtained by multiplying acreage under rice as classified for revenue purposes up to 1912–13, and acreage as reported by the Department of Land and Agriculture from 1912–13 on by an average yield for the years 1920–21 to 1923–24, for which years official estimates have been published of acreage, yield, and total production.

[4] Preliminary.

Bureau of Agricultural Economics.

Production figures refer to the year of harvest. Harvests of the Northern Hemisphere countries are combined with those of the Southern Hemisphere which immediately follow; thus, for 1932–33 the crop harvested in the Northern Hemisphere countries in 1932 is combined with the Southern Hemisphere harvest which begins late in 1932 and ends early in 1933. Estimates of world rice production for the period 1900–1901 to 1908–9 appear in Agriculture Yearbook 1924, p. 653.

TABLE 98.—*Rice, rough: Receipts at mills in Texas, Louisiana, Arkansas, and Tennessee, by months, 1923–24 to 1933–34*

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
	1,000 bbl.	*1,000 bbl.*	*1,000 bbl.*	*1,000 bbl.*	*1,000 bbl.*	*1,000 bbl.*	*1,000 bbl.*	*1,000 bbl.*	*1,000 bbl.*	*1,000 bbl.*	*1,000 bbl.*	*1,000 bbl.*	*1,000 bbl.*
1923–24	177	394	1,512	1,911	966	1,076	580	370	80	14	9	6	7,095
1924–25	298	949	2,182	1,905	973	448	197	43	34	11	45	8	7,093
1925–26	457	853	925	1,131	1,672	1,019	477	210	194	119	106	74	7,237
1926–27	188	1,147	1,681	1,253	1,053	818	648	621	372	396	430	147	8,754
1927–28	530	1,167	1,719	1,266	831	853	805	942	620	352	130	17	9,232
1928–29	180	1,197	2,113	1,936	947	621	592	439	429	232	191	126	9,003
1929–30	584	1,388	2,330	1,416	797	870	961	284	146	172	48	21	9,017
1930–31	481	1,005	2,063	1,246	867	1,147	864	601	566	520	323	172	9,855
1931–32	228	1,442	1,810	1,408	632	569	734	813	599	702	328	218	9,483
1932–33	266	862	1,606	1,189	724	687	747	821	1,032	628	257	112	8,931
1933–34	171	1,067	2,094	1,100	426	721							

Bureau of Agricultural Economics. Computed from monthly reports of the Rice Millers' Association and from reports of nonassociation mills. A barrel of rice is equivalent to 162 pounds of rough rice.

TABLE 99.—*Rice: Acreage and production in specified countries, average 1921–22 to 1925–26, annual 1931–32 to 1933–34*

Country	Acreage				Production, in terms of milled rice			
	Average, 1921–22 to 1925–26	1931–32	1932–33	1933–34[1]	Average, 1921–22 to 1925–26	1931–32	1932–33	1933–34[1]
NORTHERN HEMISPHERE	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*
United States	921	964	868	769	997	1,246	1,122	989
Mexico	[2] 95	89	83	----	[2] 77	98	99	----
Central America and South America:								
Salvador	[2] 13	----	----	----	[2] 17	----	----	----
Colombia	[3] 42	----	----	----	[3] 21	----	----	----
British Guiana	45	79	----	----	53	105	----	----
Dutch Guiana	----	----	----	----	14	33	----	----
Europe:								
Spain	115	113	123	122	376	362	433	403
Portugal	18	37	----	----	22	35	----	----
Italy	316	359	335	316	729	901	894	827
Yugoslavia	4	4	5	----	3	3	4	----
Bulgaria	11	17	13	14	14	20	20	19
French West Africa:								
French Guinea	[3] 2,008	----	----	----	[3] 1,106	272	----	----
French Senegal	119	----	----	----	65	----	----	----
Upper Volta	[2] 44	12	----	----	[2] 6	4	----	----
Sudan	[4] 79	176	----	----	[4] 61	105	----	----
Sierra Leone	390	297	----	----	311	373	----	----
Egypt	192	67	489	438	295	98	750	750
Asia:								
India	81,400	84,353	82,026	79,039	70,270	73,893	68,667	----
Turkey	[3] 66	49	53	----	----	51	63	----
British North Borneo	62	68	----	----	43	----	----	----
French establishments in India	45	48	----	----	29	36	----	----
Japanese Empire:								
Japan	7,705	7,961	7,983	7,867	18,107	17,346	18,972	20,723
Chosen	3,824	4,104	4,028	4,160	4,556	4,987	5,066	4,492
Taiwan	1,262	1,566	1,641	1,668	1,747	2,368	2,804	----
Kwantung	3	2	----	----	3	5	----	----
French Indo-China	12,005	13,070	13,497	----	7,704	7,638	8,117	----
Siam	5,964	6,378	7,441	----	6,065	5,581	7,018	----
Federated Malay States	186	195	----	----	127	149	----	----
Unfederated Malay States	413	----	----	----	300	----	----	----
Straits Settlements	71	----	----	----	75	----	----	----
Philippine Islands	4,229	4,402	----	----	2,744	2,920	----	----
Ceylon	799	----	----	----	471	----	----	----
SOUTHERN HEMISPHERE								
Brazil	[5] 1,029	----	----	----	[5] 1,029	----	----	----
Argentina	16	14	29	----	19	14	32	----
Australia	([6])	20	----	----	([7])	39	----	----
Madagascar	[5] 1,298	1,285	----	----	[5] 1,322	1,055	----	----
Java and Madura	8,014	8,680	9,118	9,269	7,055	7,732	8,188	8,036
Estimated world total excluding China	----	----	----	----	126,000	131,000	131,000	----

[1] Preliminary.
[2] 3-year average.
[3] 2-year average.
[4] 1 year only.
[5] 4-year average.
[6] Less than 500 acres.
[7] Less than 500,000 pounds.

Bureau of Agricultural Economics.
Both acreage and production figures refer to the year of harvest. Harvests of the Northern Hemisphere countries are combined with those of the Southern Hemisphere which immediately follow; thus, for 1933–34 the crop harvested in the Northern Hemisphere countries in 1933 is combined with the Southern Hemisphere harvest which begins late in 1933 and ends early in 1934.

China is an important producing country, but official statistics are not available. The Shanghai office of the Bureau of Agricultural Economics has made the following estimates of production in China: 1930, 50,600,000 short tons; 1931, 38,180,000 tons; 1932, 49,000,000 tons, 1933, 46,800,000 tons.

TABLE 100.—*Rice, including flour, meal, and broken rice: International trade, average 1925–29, annual 1929–32*

Country	Calendar year									
	Average, 1925–29		1929		1930		1931		1932 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*
British India	4,888	224	4,600	194	5,862	160	[2] 4,823	[2] 164	[3] 4,743	[3] 68
Indo China	3,493	0	3,230	0	2,464	0	1,953	0	-------	0
Siam [4]	3,101	1	2,514	0	2,281	0	2,960	0	3,709	0
Italy	429	3	388	6	468	13	334	5	335	6
United States	252	60	386	31	259	28	274	31	257	19
Spain	115	0	86	0	125	0	83	0	87	0
Egypt	103	59	163	36	112	26	63	55	90	47
Madagascar	41	0	16	0	14	0	13	0	11	0
Total	12,422	347	11,383	267	11,585	227	10,503	255	9,232	140
PRINCIPAL IMPORTING COUNTRIES										
China	6	2,024	4	1,443	4	2,652	4	1,432	5	2,942
British Malaya	623	1,960	545	2,079	490	2,106	412	1,817	425	1,574
Dutch East Indies	51	1,303	28	1,621	27	1,385	38	1,342	[5] 40	[5] 330
Ceylon	0	1,048	[6] 0	1,100	[6] 0	1,063	[6] 0	1,002	0	640
Japan	14	961	8	401	97	397	326	277	67	337
Germany	325	848	256	658	159	550	137	896	105	848
France	169	532	217	562	190	534	94	646	86	802
Cuba	0	461	0	452	0	443	0	339	0	-------
Netherlands	224	272	211	246	216	242	258	333	189	180
United Kingdom	16	269	13	258	14	254	11	257	5	264
Philippine Islands	1	147	1	232	1	24	2	27	1	29
Argentina	0	139	0	146	0	159	0	116	0	74
Russia	0	126	1	90	1	92	2	77	2	108
Mauritius	0	129	0	121	0	114	0	140	0	126
Czechoslovakia	0	112	0	107	0	98	0	113	0	110
Belgium	4	91	5	87	1	105	20	135	21	121
Total	1,433	10,422	1,289	9,603	1,200	10,218	1,304	8,949	946	8,485

[1] Preliminary.
[2] Includes 9 months' land trade.
[3] Sea trade only.
[4] Year ending Mar. 31 of following year.
[5] Java and Madura only.
[6] International Yearbook of Agricultural Statistics.

Bureau of Agricultural Economics; official sources except where otherwise noted.
Mostly milled rice. Under rice is included paddy, unhulled, rough, milled, polished, broken, and cargo rice, in addition to rice flour and meal. Rice bran is not included. Rough rice, or paddy, where specifically reported, has been reduced to terms of milled rice at the ratio of 162 pounds of rough or unhulled to 100 pounds of milled. "Rice, other than whole or cleaned rice", in the returns of the United Kingdom is not considered paddy, since the chief sources of supply indicate that it is practically all hulled rice. Cargo rice, a mixture of hulled and unhulled, is included without being reduced to terms of milled. Broken rice and rice flour and meal, are taken without being reduced to terms of whole milled rice.

TABLE 101.—*Rice, Blue Rose, milled: Average wholesale price per 100 pounds, New Orleans, 1923–24 to 1932–33*

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1923–24	3.78	4.00	4.88	4.66	4.38	4.62	4.69	5.06	5.06	5.88	6.12	6.19	4.94
1924–25	5.88	5.69	5.12	5.50	6.10	6.30	6.50	6.38	6.34	6.50	6.81	6.88	6.17
1925–26	6.62	6.31	5.69	6.34	6.41	6.31	6.59	6.25	6.19	5.60	5.94	5.94	6.18
1926–27	4.94	5.62	4.81	4.44	4.38	4.50	4.19	4.34	4.06	4.12	4.52	4.22	4.51
1927–28	4.12	4.12	3.84	3.62	3.69	3.75	3.66	3.62	3.50	4.12	4.28	4.12	3.87
1928–29	4.12	------	3.91	3.81	3.94	4.12	3.88	3.88	3.88	3.75	3.81	3.94	------
1929–30	4.25	3.72	3.78	3.88	3.84	4.00	4.12	4.31	4.31	4.56	4.31	4.31	4.12
1930–31	4.06	4.12	3.75	3.50	3.46	3.25	3.44	3.31	3.44	3.22	3.00	3.13	3.47
1931–32	3.28	2.94	2.56	2.81	2.75	2.69	2.60	2.38	2.25	2.29	2.25	2.16	2.58
1932–33	2.18	2.22	2.19	2.12	2.00	------	------	------	------	------	------	------	------

Bureau of Agricultural Economics. Compiled from annual reports of the New Orleans Board of Trade.

TABLE 102.—*Rice: Consumption in the United States and possessions, United States exports and sales, 1918–19 to 1932–33*

Year beginning August	Consumption in the United States and possessions											United States exports[1] [2]	Total sales United States rice[1]
	Foreign and United States rice									Foreign rice	United States rice		
	United States		Puerto Rico		Hawaii[1]		Alaska		Total				
	Total	Per capita	Total	Per capita	Total	Per capita	Total	Per capita					
	1,000 pockets	*Lb.*	*1,000 pockets*	*Lb.*	*1,000 pockets*	*Lb.*	*1,000 pockets*	*Lb.*	*1,000 pockets*	*1,000 pockets*	*1,000 pockets*	*1,000 pockets*	*1,000 pockets*
1918–19	5,829	5.7	1,669	114.8	433	181.2	16	-------	7,947	438	7,509	2,191	9,700
1919–20	3,632	3.4	1,405	98.6	438	175.0	14	-------	5,489	691	4,798	4,745	9,543
1920–21	5,565	5.2	1,648	113.7	521	199.2	8	-------	7,742	476	7,266	4,863	12,129
1921–22	4,890	4.5	1,643	113.3	472	173.0	11	19.8	7,016	198	6,818	4,740	11,558
1922–23	5,848	5.3	1,702	117.4	562	198.0	14	-------	8,126	315	7,811	3,249	11,060
1923–24	5,890	5.3	1,824	123.3	608	205.9	13	-------	8,335	354	7,981	1,564	9,545
1924–25	6,192	5.5	1,778	118.6	659	215.0	12	-------	8,641	435	8,206	744	8,950
1925–26	6,060	5.3	1,860	124.0	658	207.1	13	-------	8,591	909	7,682	285	7,967
1926–27	6,671	5.7	1,833	122.2	696	211.6	11	-------	9,211	464	8,747	2,381	11,128
1927–28	7,370	6.2	1,932	132.9	704	206.9	13	-------	10,019	327	9,692	2,390	12,082
1928–29	7,017	5.8	2,084	141.5	814	231.6	13	-------	9,928	237	9,691	3,196	12,887
1929–30	6,495	5.3	1,941	125.7	832	229.4	13	21.9	9,281	271	9,010	2,250	11,260
1930–31	7,147	5.8	2,077	134.5	892	173.0	11	16.0	10,127	274	9,853	2,217	12,070
1931–32	6,619	5.4	2,012	130.3	913	247.9	10	16.9	9,554	120	9,434	2,246	11,080
1932–33	7,621	6.1	2,249	145.7	879	238.6	11	18.6	10,760	109	10,651	1,275	11,926

[1] Hawaiian production not included.
[2] Reports of Foreign and Domestic Commerce.

Bureau of Agricultural Economics; compiled from annual reports of the Rice Millers' Association, New Orleans. A pocket of milled rice weighs 100 pounds.

TABLE 103.—*Buckwheat: Acreage, production, value, foreign trade, etc., United States, 1919–33*

Year	Acreage harvested	Average yield per acre	Production	Weighted average price per bushel received by producers	Farm value, basis weighted average price	Foreign trade, including flour, year beginning July[1]		
						Domestic exports	Imports	Net balance[2]
	1,000 acres	*Bushels*	*1,000 bushels*	*Cents*	*1,000 dollars*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1919	*743*	*17.1*	*12,690*	-------	-------	-------	-------	-------
1919	733	17.3	12,707	158.7	20,163	245	160	+85
1920	729	16.7	12,193	125.4	15,288	399	336	+63
1921	640	18.5	11,822	87.9	10,391	485	113	+372
1922	729	16.2	11,776	89.5	10,536	172	286	−114
1923	689	16.8	11,596	95.8	11,104	92	322	−230
1924	*717*	*16.8*	*12,004*	-------	-------	-------	-------	-------
1924	737	17.0	12,508	107.4	13,433	191	546	−355
1925	742	16.9	12,559	87.2	10,950	79	88	−9
1926	679	16.2	10,976	87.1	9,565	66	86	−20
1927	764	16.8	12,820	86.9	11,137	554	74	+480
1928	679	14.9	10,117	89.9	9,095	229	79	+150
1929	*622*	*13.4*	*8,359*	-------	-------	-------	-------	-------
1929	627	13.9	8,692	96.3	8,367	22	171	−149
1930	573	12.1	6,960	78.9	5,493	85	426	−341
1931	505	17.6	8,890	42.3	3,764	524	14	+510
1932	454	14.8	6,727	43.4	2,918	33	62	−29
1933[3]	462	17.0	7,844	54.7	4,292	-------	-------	-------

[1] Compiled from Monthly Summary of Foreign Commerce of the United States, June issues, 1919–26; January and June issues, 1927–33 and official records of the Bureau of Foreign and Domestic Commerce. Buckwheat—imports for consumption, 1919–24 and 1930–33—general imports, 1925–29; buckwheat flour imports for consumption 1919–33. Buckwheat flour converted to terms of grain on the basis that 1 barrel of flour is the product of 7 bushels of grain.
[2] The difference between total exports (domestic exports plus reexports) and total imports. Net exports indicated by +; net imports indicated by −.
[3] Preliminary.

Bureau of Agricultural Economics.
Production figures are estimates of the Crop Reporting Board, revised, 1919–28. See introductory text; italic figures are census returns. See 1927 Yearbook, p. 825, for data for earlier years.

TABLE 104.—*Buckwheat: Acreage, yield, production, and weighted average price per bushel received by producers, by States, averages, and annual 1932 and 1933*

State and division	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1926–30	1932	1933 [1]	Average, 1921–30	1932	1933 [1]	Average, 1926–30	1932	1933 [1]	1932	1933 [2]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Cents*	*Cents*
Maine	12	13	16	20.0	21.0	20.0	221	273	320	51	67
Vermont	2	2	2	21.4	22.0	21.0	44	44	42	47	63
New York	181	149	139	17.4	16.5	19.0	2,966	2,458	2,641	42	52
New Jersey	1	1	1	19.8	21.0	15.0	23	21	15	51	67
Pennsylvania	184	138	141	17.7	15.0	19.0	2,982	2,070	2,679	43	54
North Atlantic	380	303	299	17.7	16.1	19.1	6,236	4,866	5,697	43.0	53.9
Ohio	25	20	24	17.9	13.5	15.5	419	270	372	44	60
Indiana	14	12	19	13.8	14.0	13.0	190	168	247	43	51
Illinois	5	4	6	14.2	14.5	12.5	71	58	75	47	55
Michigan	35	20	24	12.0	14.5	11.0	402	290	264	37	48
Wisconsin	22	12	17	12.3	11.5	11.0	267	138	187	45	53
Minnesota	78	20	15	11.2	9.0	8.5	839	180	128	32	40
Iowa	8	3	3	14.4	13.5	14.0	104	40	42	45	63
Missouri	1	1	1	11.0	12.0	11.0	11	12	11	48	68
North Dakota	20	4	2	11.0	5.0	3.0	233	20	6	32	50
South Dakota	20	4	1	11.0	7.5	5.0	230	30	5	32	47
Nebraska	1	1	1	10.4	8.5	11.0	10	8	11	32	50
North Central	227	101	113	12.7	12.0	11.9	2,775	1,214	1,348	40.2	52.7
Delaware	1	1	1	11.2	10.0	10.0	13	10	10	54	74
Maryland	7	5	6	19.1	17.5	18.0	138	88	108	46	58
Virginia	14	15	13	13.2	10.0	13.0	192	150	169	51	64
West Virginia	24	21	22	17.7	15.0	18.5	432	315	407	54	64
North Carolina	5	4	4	13.0	11.0	17.0	72	44	68	55	66
South Atlantic	52	46	46	16.0	13.2	16.6	847	607	762	51.9	63.4
Kentucky	3	2	2	9.8	10.0	8.0	27	20	16	56	76
Tennessee	2	2	2	13.9	10.0	10.5	28	20	21	54	75
South Central	5	4	4	11.3	10.0	9.2	55	40	37	55.0	75.7
United States	664	454	462	15.9	14.8	17.0	9,913	6,727	7,844	43.4	54.7

[1] Preliminary.
[2] Average price for 4 months.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 105.—*Buckwheat: Average price per bushel received by producers, United States, 1924–25 to 1933–34*

Year	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cesnt*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	118.8	107.1	106.8	104.6	107.0	112.2	112.4	104.1	113.3	112.3	115.7	110.0	108.6
1925–26	101.2	87.6	86.7	87.9	85.7	80.9	81.7	82.5	85.0	90.1	89.9	93.7	87.5
1926–27	90.4	86.5	83.6	83.5	83.6	84.6	86.0	85.1	88.1	98.8	101.0	98.1	87.0
1927–28	92.3	82.9	79.4	81.0	82.0	85.2	90.2	94.8	102.3	109.0	108.0	98.1	87.6
1928–29	92.6	84.5	84.8	88.7	91.2	94.3	94.1	96.4	96.5	94.7	100.4	99.6	90.7
1929–30	96.6	95.8	95.6	95.9	97.3	95.8	94.9	94.8	95.7	100.0	98.3	97.4	96.3
1930–31	97.1	90.7	82.8	80.0	79.1	76.6	77.4	75.2	73.2	72.6	70.0	59.2	79.6
1931–32	52.4	40.2	41.2	41.9	42.1	40.9	41.7	41.4	40.9	42.3	44.2	44.3	42.3
1932–33	43.0	40.3	39.0	38.3	39.2	39.1	39.5	42.7	48.4	53.6	66.3	67.3	43.4
1933–34	68.4	56.7	52.5	51.3	------	------	------	------	------	------	------	------	------

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; yearly price obtained by weighting monthly price by average monthly marketings.

TABLE 106.—*Sorghums [1] cut for grain, forage, and all purposes: Acreage, production, and price per bushel received by producers, United States, 1919–33*

Year	Grain: Acreage	Grain: Yield per acre	Grain: Production	Forage: Acreage	Forage: Yield per acre	Forage: Production	All purposes: Acreage	All purposes: Equivalent yield per acre	All purposes: Equivalent production on total acreage	Price per bushel, Dec. 1 [2]	Farm value, basis Dec. 1 price
	1,000 acres	*Bushels*	*1,000 bushels*	*1,000 acres*	*Short tons*	*1,000 short tons*	*1,000 acres*	*Bushels*	*1,000 bushels*	*Cents*	*1,000 dollars*
1919	*3,726*	*19.8*	*73,654*								
1919	3,630	20.4	73,952	2,665	1.67	4,438	6,295	19.4	122,330	128.0	156,531
1920	4,027	21.8	87,734	2,513	1.78	4,479	6,540	20.9	136,367	94.2	128,504
1921	3,700	19.2	70,950	2,424	1.57	3,794	6,124	18.3	112,273	39.2	44,062
1922	3,369	14.7	49,523	2,127	1.37	2,917	5,496	13.7	75,530	87.2	65,898
1923	4,204	14.7	61,648	2,150	1.40	3,015	6,354	13.9	88,466	93.5	82,674
1924	*3,526*	*16.6*	*58,700*								
1924	3,506	16.7	58,474	2,184	1.40	3,050	5,690	15.4	87,870	85.5	75,095
1925	3,887	14.2	55,244	2,385	1.29	3,076	6,272	13.1	82,224	75.1	61,733
1926	4,211	16.8	70,869	2,229	1.32	2,950	6,440	15.8	101,502	54.2	55,007
1927	4,270	17.0	72,738	2,452	1.47	3,613	6,722	16.0	107,261	77.1	82,666
1928	4,121	17.8	73,427	2,406	1.48	3,566	6,527	17.1	111,690	65.7	73,418
1929 [3]	*3,522*	*13.9*	*49,109*								
1929	3,467	14.2	49,399	2,664	1.37	3,654	6,131	13.2	81,041	66.8	54,173
1930	3,449	10.8	37,203	3,137	1.17	3,678	6,586	9.8	64,416	56.2	36,220
1931	4,509	15.6	70,116	2,657	1.30	3,446	7,166	14.7	105,369	25.6	27,026
1932	4,548	14.4	65,339	3,316	1.35	4,471	7,864	13.5	106,306	19.1	20,349
1933 [4]	4,877	11.7	57,282	3,266	1.24	4,044	8,143	10.8	87,884	40.7	35,802

[1] Kafirs, milo, feterita, durra, etc.
[2] From 1919 to 1924, Nov. 15 price; 1925 and 1926, Dec. 1 price; 1927–32, average price for the crop marketing season; 1933, Dec. 1 price.
[3] Includes sorgo seed.
[4] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.
Revised, 1919–28. See introductory text. Italic figures are census returns.

TABLE 107.—*Sorghums: [1] Acreage, yield, production, and average price per bushel received by producers, by States, averages, and annual 1932 and 1933*

State	Acreage for all purposes: Average, 1926–30	Acreage for all purposes: 1932	Acreage for all purposes: 1933 [3]	Equivalent yield per acre: Average, 1921–30	Equivalent yield per acre: 1932	Equivalent yield per acre: 1933 [3]	Production for all purposes [2]: Average, 1926–30	Production for all purposes [2]: 1932	Production for all purposes [2]: 1933 [3]	Price for crop of—: 1932	Price for crop of—: 1933 [4]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Cents*	*Cents*
Missouri	73	104	88	14.9	16.5	16.0	1,107	1,716	1,408	32	58
Nebraska	21	22	37	15.8	15.0	15.5	331	330	574	25	45
Kansas	1,166	1,328	1,607	15.3	13.0	10.0	17,364	17,264	16,070	18	37
Oklahoma	1,399	1,602	1,400	11.4	9.5	8.5	15,382	15,219	11,900	20	42
Texas	3,234	4,065	4,228	15.6	15.5	11.0	49,756	63,008	46,508	18	41
Colorado	209	206	284	11.4	6.0	7.5	2,108	1,236	2,130	16	35
New Mexico	267	392	372	17.1	9.6	14.0	4,052	3,763	5,208	16	37
Arizona	27	30	35	25.1	26.0	30.0	689	780	1,050	37	47
California	86	115	92	28.1	26.0	33.0	2,393	2,990	3,036	38	51
United States	6,481	7,864	8,143	14.6	13.5	10.8	93,182	106,306	87,884	19.1	40.7

[1] Kafirs, milo, feterita, durra, etc.
[2] Includes grain equivalent on forage acreage.
[3] Preliminary.
[4] Dec. 1 price.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board

TABLE 108.—*Grain sorghums:*[1] *Receipts at Kansas City, 1923–24 to 1932–33*

Year	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Total
	1,000 bu.	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*
1923–24	195	350	465	579	398	340	274	262	250	106	63	103	3,385
1924–25	647	1,152	683	636	497	320	301	440	221	183	68	24	5,172
1925–26	279	629	416	290	261	211	290	469	162	94	136	97	3,334
1926–27	397	493	626	442	293	216	192	241	249	285	79	112	3,625
1927–28	410	905	696	519	592	392	323	343	224	87	51	236	4,778
1928–29	449	675	856	525	705	426	394	668	207	196	97	182	5,380
1929–30	294	626	296	447	327	296	202	179	68	42	52	34	2,863
1930–31	299	239	162	145	130	139	109	204	41	38	31	134	1,671
1931–32	257	76	168	181	115	143	119	70	70	77	69	148	1,493
1932–33	105	127	------	------	------	------	------	------	------	------	------	------	------

[1] Includes kafir corn, milo maize, and feterita. Receipts for 1909–10 to 1922–23 available in 1931 Yearbook, p. 670, table 131.

Bureau of Agricultural Economics; compiled from annual statistical reports of Kansas City Board of Trade

TABLE 109.—*Grain sorghums: Classification of receipts graded by licensed inspectors, all inspection points, total of all classes under each grade, 1925–26 to 1932–33*

Year beginning July	Grade					Total
	No. 1	No. 2	No. 3	No. 4	Sample	
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
1925–26	312	4,158	5,796	1,639	495	12,400
1926–27	878	7,180	6,674	1,792	691	17,215
1927–28	1,175	9,885	8,125	3,143	965	23,293
1928–29	866	7,247	5,400	6,794	3,969	24,276
1929–30	557	5,495	4,043	3,664	1,722	15,481
1930–31	224	2,368	2,432	1,240	390	6,654
1931–32	1,256	11,556	3,197	944	597	17,550
932–33	323	2,501	1,183	757	341	5,105

Bureau of Agricultural Economics.

TABLE 110.—*Kafir, No. 2 White: Weighted average price*[1] *per bushel of reported cash sales, Kansas City, 1924–25 to 1933–34*

Year	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	88	98	109	103	93	92	97	105	113	116	107	100	101
1925–26	82	77	77	72	68	70	69	70	79	76	74	71	73
1926–27	64	64	63	63	65	69	79	102	110	97	([2])	70	------
1927–28	69	71	74	81	88	90	92	91	92	83	89	83	82
1928–29	78	74	75	80	71	71	71	74	89	90	105	81	77
1929–30	77	73	76	72	77	91	91	94	92	101	98	([2])	------
1930–31	63	61	58	53	53	59	58	57	51	42	42	36	55
1931–32	40	33	34	31	32	32	31	([2])	32	36	34	25	------
1932–33	28	25	25	24	27	39	43	52	68	67	64	52	44
1933–34	44	41	------	------	------	------	------	------	------	------	------	------	------

[1] Average of daily prices weighted by car-lot sales. [2] No quotations.

Bureau of Agricultural Economics; compiled from Kansas City Grain Market Review, formerly Daily Price Current.

Quoted per 100 pounds; converted to bushels of 56 pounds. Data for 1909–10 to 1923–24 available in 1930 Yearbook, table 123.

STATISTICS OF COTTON, SUGAR, AND TOBACCO

TABLE 111.—*Cotton: Acreage, production, value, foreign trade, etc., United States, 1890–1933*

Year	Acreage in cultivation July 1[1]	Acreage harvested	Average yield per acre	Production[2]	Price per pound received by producers Dec. 1[3]	Farm value, basis Dec. 1 price	Market price[4] per pound, year beginning Aug.: New York	Market price[4] per pound, year beginning Aug.: New Orleans	Foreign trade, year beginning August: Domestic exports[5 6 7]	Foreign trade, year beginning August: Imports[6 8]	Foreign trade, year beginning August: Net exports[5 6 7 9]
	1,000 acres	*1,000 acres*	*Pounds*	*1,000 bales*	*Cents*	*1,000 dollars*	*Cents*	*Cents*	*1,000 bales*	*1,000 bales*	*1,000 bales*
1890		20,937	195.5	8,653	8.59	368,108	9.48	9.08	5,859	45	5,815
1891		21,503	198.7	9,035	7.24	323,943	7.68	7.28	5,888	61	5,827
1892		18,869	168.7	6,700	8.34	277,556	8.45	8.15	4,456	90	4,367
1893		20,256	175.3	7,493	7.00	260,096	7.75	7.30	5,309	58	5,253
1894		21,886	219.0	9,901	4.59	230,071	6.38	5.86	7,010	104	6,908
1895		19,839	172.2	7,162	7.62	272,378	8.10	7.68	4,710	115	4,598
1896		23,230	175.2	8,533	6.66	283,463	7.71	7.28	6,172	119	6,055
1897		25,131	209.0	10,899	6.68	367,065	6.40	5.84	7,757	102	7,656
1898		24,715	223.1	11,278	5.73	330,282	6.00	5.46	7,662	105	7,557
1899		*24,275*		*9,535*							
1899		24,163	185.0	9,346	6.98	326,208	8.36	8.03	6,228	140	6,091
1900		24,886	194.7	10,124	9.15	463,295	9.38		6,800	109	6,692
1901		27,050	168.2	9,508	7.03	334,075	8.73	8.40	6,949	202	6,750
1902		27,561	184.7	10,630	7.60	403,717	9.96	9.64	7,084	151	6,936
1903		27,762	169.9	9,851	10.49	516,764	12.84	12.49	6,207	103	6,107
1904		30,077	213.7	13,438	8.98	603,433	9.09	8.70	8,908	129	8,781
1905		27,753	182.3	10,576	10.78	569,788	11.30	10.97	7,118	144	6,980
1906		31,404	202.3	13,274	9.58	635,537	11.24	10.92	8,943	227	8,741
1907		30,729	172.9	11,106	10.36	575,207	11.53	11.41	7,666	153	7,518
1908		31,091	203.8	13,241	9.01	596,608	10.23	9.80	8,955	181	8,778
1909		*32,044*		*10,649*							
1909	31,744	30,555	156.5	10,005	13.60	680,246	14.66	14.33	6,353	170	6,194
1910	32,480	31,508	176.2	11,609	13.95	809,724	14.87	14.65	8,027	245	7,787
1911	35,634	34,916	215.0	15,694	9.60	752,925	10.85	10.85	11,116	233	10,885
1912	33,199	32,557	201.4	13,703	11.49	787,232	12.29	12.20	9,146	249	8,899
1913	35,721	35,206	192.3	14,153	12.50	884,926	13.21	13.12	9,508	273	9,251
1914	36,197	35,615	216.4	16,112	7.36	592,830	[10] 8.89		8,702	400	8,322
1915	30,544	29,951	178.5	11,172	11.22	626,774	11.98	11.68	6,113	458	5,673
1916	33,977	33,071	165.6	11,448	17.34	992,304	19.28	18.84	5,525	311	5,219
1917	33,064	32,245	167.4	11,284	27.12	1,529,862	29.68	28.96	4,402	231	4,175
1918	36,123	35,038	164.1	12,018	28.93	1,738,071	31.01	29.87	5,774	211	5,568
1919		*33,740*		*11,376*							
1919	34,573	32,906	165.9	11,411	35.41	2,020,398	38.29	38.21	6,707	732	5,993
1920	35,872	34,408	186.7	13,429	15.92	1,069,257	17.89	16.55	5,973	237	5,753
1921	29,716	28,678	132.5	7,945	17.01	675,773	18.92	17.92	6,348	380	5,980
1922	32,176	31,361	148.8	9,755	22.87	1,115,578	26.24	25.94	5,007	492	4,536
1923	37,000	35,550	136.4	10,140	28.69	1,454,320	31.11	30.33	5,815	306	5,530
1924		*39,204*		*13,683*							
1924	40,692	39,503	165.0	13,630	22.91	1,561,022	24.74	24.21	8,240	328	7,923
1925	45,972	44,390	173.5	16,105	19.59	1,577,091	20.53	19.71	8,267	340	7,939
1926	45,847	44,616	192.8	17,978	12.47	1,121,210	15.15	14.74	11,299	419	10,900
1927	39,479	38,349	161.7	12,956	20.19	1,308,090	20.42	19.98	7,857	354	7,522
1928	43,735	42,432	163.3	14,477	17.99	1,302,040	19.73	18.98	8,419	479	7,957
1929		*43,227*		*14,574*							
1929	44,458	43,242	164.1	14,825	16.79	1,244,847	16.60	16.16	7,035	395	6,650
1930	43,339	42,454	157.0	13,932	9.46	659,047	10.38	10.08	7,133	112	7,029
1931	39,109	38,705	211.5	17,095	5.66	483,666	6.34	6.20	9,193	138	9,081
1932	36,542	35,939	173.3	13,002	6.52	424,032	7.37	7.26	8,895	136	8,765
1933[11]	40,929	[12] 30,144	209.4	13,177	9.17	604,376					

1 For 1909–26, inclusive, the acreage figures relate to June 25 instead of July 1.

2 Agricultural census figures for all periods and department figures prior to 1899 are in running bales; 500 pound gross weight bales, 1899–1933.

3 Beginning with 1908 prices are weighted average prices for crop marketing season.

4 New York prices 1890–99 from the Commercial and Financial Chronicle; beginning 1900 from reports of the New York Cotton Exchange except Sept. 23–Nov. 16, 1914, when the exchange was closed (prices for this period from the Commercial and Financial Chronicle). New Orleans prices were from same sources prior to Aug. 16, 1915, since which date from reports of the New Orleans Cotton Exchange direct to this bureau. These central market prices are for Middling grade, ⅞-inch staple, only.

5 Excluding linters from 1914 to 1933.

6 Compiled from Commerce and Navigation of the United States, 1890–1917; Foreign Commerce and Navigation of the United States, 1918; Monthly Summary of Foreign Commerce of the United States, June and July 1919–33, and January 1927–33.

7 Bales of 500 pounds gross weight.

8 Bales of 478 pounds net, which are equivalent to bales of 500 pounds gross weight.

9 Total exports (domestic plus foreign) minus imports.

10 Average for 9 months only. Exchange closed Aug. 1–Nov. 17, on account of war.

11 Preliminary.

12 Area in cultivation July 1 less removal of acreage reported by the Agricultural Adjustment Administration, less abandonment on area not under contract.

Bureau of Agricultural Economics.

Agricultural census figures in italics; other acreage, yield, and production figures are estimates of the Crop Reporting Board. Production figures conform with census annual ginning enumerations, with allowance for cross State ginnings, State figures rounded to thousands and added for United States total. Since the 1933 Yearbook was published, acreage and yield for all years have been revised to the level of the 1930 census, and cotton grown in Baja California, ginned in California, from 1913 to 1924 has been excluded.

TABLE 112.—*Cotton: Acreage, yield, production of lint in 500-pound gross-weight bales, and weighted average price per pound received by producers, by States, averages, and annual 1932 and 1933*

State	Acreage harvested			Yield per acre			Production [1]			Price for crop of—	
	Average, 1927–31	1932	1933 [2]	Average, 1922–31	1932	1933 [2]	Average, 1927–31	1932	1933 [2]	1932	1933 [3]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Lb.*	*Lb.*	*Lb.*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*Cents*	*Cents*
Missouri	344	406	345	254	362	340	184	307	245	5.89	8.90
Virginia	78	70	65	270	233	279	45	34	38	6.42	9.30
North Carolina	1,495	1,251	1,088	272	252	303	791	660	690	7.12	9.60
South Carolina	1,955	1,661	1,379	201	206	257	858	716	742	7.21	9.40
Georgia	3,247	2,651	2,147	172	154	247	1,292	854	1,110	6.98	9.20
Florida	119	102	96	128	78	134	35	17	27	6.30	8.80
Tennessee	1,035	1,064	898	197	216	245	455	480	460	6.14	9.20
Alabama	3,398	3,021	2,417	172	150	194	1,303	947	980	6.83	9.10
Mississippi	3,874	3,839	2,964	192	147	190	1,594	1,180	1,180	6.82	9.60
Arkansas	3,264	3,378	2,631	188	188	194	1,292	1,327	1,065	6.51	9.30
Louisiana	1,799	1,688	1,283	191	173	181	733	611	486	6.74	9.10
Oklahoma	3,805	3,108	2,932	143	167	210	1,100	1,084	1,285	6.07	8.80
Texas	16,069	13,334	11,467	136	162	187	4,551	4,500	4,475	6.23	9.00
New Mexico	119	112	92	307	307	448	90	72	86	6.59	9.50
Arizona	191	113	116	315	293	338	133	69	82	7.79	10.20
California	223	123	208	350	503	497	193	129	216	7.09	10.00
All other	19	18	16	208	393	290	8	15	10	6.06	9.16
United States	41,036	35,939	30,144	167.4	173.3	209.4	14,657	13,002	13,177	6.52	9.17
Baja California (old Mexico)	117	27	54	238	248	169	54	14	19		

[1] Compiled from reports of the Bureau of the Census. Slight differences from census figures on ginnings are due to ginnings in one State of cotton grown in another.
[2] Preliminary estimate of the Department of Agriculture.
[3] Average price for 5 months.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 113.—*Cotton: Acreage and production in specified countries, average 1925–26 to 1929–30, annual 1931–32 to 1933–34*

Country	Acreage				Production			
	Average, 1925–26 to 1929–30	1931–32	1932–33	1933–34 [1]	Average, 1925–26 to 1929–30	1931–32	1932–33	1933–34 [1]
	Acres	*Acres*	*Acres*	*Acres*	*Bales* [2]	*Bales* [2]	*Bales* [2]	*Bales* [2]
United States	42,606,000	38,705,000	35,939,000	30,144,000	15,268,000	17,095,000	13,002,000	13,177,000
Mexico	471,632	319,041	187,561	421,123	252,805	210,226	94,835	223,444
Venezuela					[3] 33,095			
Colombia	49,273				14,305	9,224		
Peru	304,302	313,545			244,627	233,835	231,055	
Ecuador					5,776			
Brazil	1,264,383	1,500,000	1,538,309		547,364	557,100	408,253	
Bolivia	[4] 5,601				[3] 2,139			
Paraguay	[5] 23,691	28,738			[3] 12,328	15,787		
Argentina	241,073	336,449	387,947		115,370	169,199	181,169	
Guatemala	697				397			
Haiti	130,269				[6] 22,324			
Dominican Republic					[3] 351			
Puerto Rico	10,020	8,402			2,030	637		
Salvador					[3 6] 774			
British West Indies	16,807	10,492			4,288	2,400		
Italy	[3] 8,772	4,201	3,000	4,000	[7] 3,300	1,401	1,000	1,000
Yugoslavia	1,763	1,846			392	342		
Greece	39,819	45,669	49,400		15,016	13,671	22,000	
Bulgaria	10,867	13,089	20,000	49,000	3,046	4,907	8,400	18,000
Malta	993	334			427	169		
Spain	13,643	14,250	20,000	19,000	2,974	3,690	5,000	9,000
Algeria	15,138	4,561			6,176	1,349		
Morocco (French)	1,480				448			

See footnotes at end of table.

Table 113.—*Cotton: Acreage and production in specified countries, average 1925–26 to 1929–30, annual 1931–32 to 1933–34*—Continued

Country	Acreage				Production			
	Average, 1925–26 to 1920–30	1931–32	1932–33	1933–34 [1]	Average, 1925–26 to 1929–30	1931–32	1932–33	1933–34 [1]
French West Africa:	*Acres*	*Acres*	*Acres*	*Acres*	*Bales* [2]	*Bales* [2]	*Bales* [2]	*Bales* [2]
Dahomey					6,344			
Ivory Coast	[5] 149,376				[6] 7,646	[6] 5,106		
French Guinea	[3] 18,841				[3] 2,406			
Senegal	47,690				1,695	404		
French Sudan	[5] 158,267				7,947			
Upper Volta					5,776			
French Togo					7,732	5,917		
Nigeria					[6] 28,846	[6] 5,144		
French Equatorial Africa	[4] 7,797	49,420	124,000		[5] 822	5,103	12,000	19,000
Egypt	1,828,000	1,747,000	1,135,000	1,873,000	1,587,000	1,323,000	1,028,000	1,819,000
Anglo-Egyptian Sudan	269,200	335,858	324,830	332,000	125,547	205,991	120,664	
Italian Somaliland	15,862	14,554			4,005	5,435		
Niger Territory	[3] 18,162				1,764			
Eritrea	[3] 6,487	6,919	5,000	12,000	1,624	1,706	2,000	
Gold Coast					[3] 209			
Belgian Congo	[3] 24,850				25,587			
Kenya					1,299	1,452		
Uganda	615,441	865,545	1,071,521	1,034,000	131,257	173,494	243,000	
Angola					[6] 3,022			
Tanganyika		112,240			20,537	9,499	13,102	
Nyasaland	[3] 23,805	31,046	33,840		4,360	3,737	4,293	
Northern Rhodesia [8]	2,566				126			
Southern Rhodesia	16,706	5,115			1,508	485		
Mozambique					9,094	[6] 8,265		
Union of South Africa	64,491	2,344	2,211		[9] 11,302	[9] 2,344	[9] 2,211	
Cyprus	11,342	11,208			2,532	2,397		
Ceylon	1,631	1,977			192			
Turkey (Asiatic)	334,230	491,269	358,000		92,928	91,000	28,000	19,000
Syria and Lebanon	54,977	74,871	20,000	19,000	9,886	17,008	4,000	4,000
Russia	1,991,000	5,346,000	5,139,000	4,800,000	1,012,000	1,843,000	1,778,000	1,800,000
Iraq	[7] 15,000				2,977	808		
Persia					95,160	[6] 103,740	[10] 100,000	[10] 100,000
India	26,192,000	23,722,000	22,558,000	22,714,000	4,724,000	3,368,000	3,779,000	4,000,000
China [11]	4,480,000	4,800,000	5,630,000	6,000,000	2,009,000	1,785,000	2,261,000	2,500,000
Japan	2,857				1,090			
Chosen	495,232	471,852	393,000	429,000	137,593	100,940	127,000	147,000
French Indo-China	[4] 42,960	24,703			[4] 7,120			
Dutch East Indies	21,708	16,630			4,708	5,537		
Siam	8,951				3,244			
Australia	22,895				7,311	3,874		
New Hebrides [6]					2,505			
Estimated world total, including China	83,080,000	80,800,000	76,500,000	74,700,000	26,740,000	27,500,000	23,600,000	25,500,000

[1] Preliminary.
[2] Bales of 478 pounds net.
[3] Average for 4 years.
[4] Average for 2 years.
[5] Average for 3 years.
[6] Exports.
[7] Estimate for 1 year.
[8] Production has been discontinued with the exception of a few experimental plots under Government supervision.
[9] Includes Swaziland.
[10] From an unofficial source.
[11] From reports of the Chinese Cotton Statistics Association, except for 1933–34 which are the estimate of this Bureau. Figures represent the crop in the most important cotton provinces where the commercial crop is grown.

Bureau of Agricultural Economics; from official sources, International Institute of Agriculture and estimates of the Bureau of Agricultural Economics except as noted.
Data for crop year as given at the head of table are for crops harvested between Aug. 1 and July 31.

TABLE 114.—*Cotton: Production, world and selected countries, 1909–10 to 1933–34*

Crop year	Estimated world total excluding China	Estimated world total including China	Production in selected countries						Estimated world total commercial crop [2]
			United States	India	Egypt	China [1]	Brazil	Russia	
	1,000 bales [3]	*1,000 bales* [3]	*1,000 bales* [3]	*1,000 bales* [3]	*1,000 bales* [3]	*1,000 bales* [3]	*1,000 bales* [3]	*1,000 bales* [3]	*1,000 bales* [4]
1909–10	16,900		10,005	3,998	1,036		324		16,241
1910–11	18,400		11,609	3,254	1,555		357		18,027
1911–12	21,900		15,694	2,730	1,530		360		21,269
1912–13	21,100		13,703	3,702	1,554		418		20,976
1913–14	22,200		14,153	4,239	1,588		477		21,618
1914–15	24,200		16,112	4,359	1,337		465	1,270	23,768
1915–16	17,800		11,172	3,128	989		339	1,512	17,649
1916–17	18,366	19,900	11,448	3,759	1,048	1,534	337	1,199	18,092
1917–18	17,608	19,700	11,284	3,393	1,304	2,092	414	634	18,140
1918–19	17,841	20,900	12,018	3,328	999	3,059	406	161	18,755
1919–20	18,782	21,300	11,411	4,853	1,155	2,518	461	81	20,220
1920–21	19,217	21,100	13,429	3,013	1,251	1,883	476	58	19,665
1921–22	13,886	15,400	7,945	3,753	902	1,514	504	43	15,334
1922–23	16,982	19,300	9,755	4,247	1,391	2,318	553	55	17,926
1923–24	17,707	19,700	10,140	4,320	1,353	1,993	576	196	19,036
1924–25	22,622	24,800	13,630	5,095	1,507	2,178	605	453	23,836
1925–26	25,798	27,900	16,105	5,201	1,629	2,192	602	782	26,678
1926–27	26,658	28,400	17,978	4,205	1,586	1,742	512	830	27,819
1927–28	22,125	24,000	12,956	4,990	1,261	1,875	487	994	23,426
1928–29	24,434	26,900	14,477	4,838	1,672	2,212	525	1.174	25,628
1929–30	24,384	26,500	14,825	4,289	1,768	2,116	584	1,279	26,653
1930–31	23,550	25,800	13,932	4,373	1,715	2,250	471	1,589	25,304
1931–32	25,715	27,500	17,095	3,368	1,323	1,785	557	1,843	26,329
1932–33	21,340	23,600	13,002	3,779	1,028	2,261	408	1,778	23,634
1933–34 [5]	23,000	25,500	13,177	4,000	1,819	2,500		1,800	

[1] From reports of the Chinese Cotton Statistics Association, except for 1933–34, which is the estimate of this Bureau. Figures represent the crop in the most important cotton-producing Provinces where the commercial crop is grown. Most of the cotton produced in other provinces is used for home hand-loom consumption.
[2] Figures as reported by the U.S. Bureau of the Census, including the cotton destined to enter commercial channels for factory purposes. Estimates of the commercial crop in China are included.
[3] Bales of 478 pounds net.
[4] American in running bales and foreign in bales of 478 pounds net, beginning with 1922–23. From 1909–10 to 1916–17, inclusive, bales of 500 pounds net, and from 1917–18 to 1921–22 in bales of 478 pounds net.
[5] Preliminary.

Bureau of Agricultural Economics; from official sources, International Institute of Agriculture, and estimates of the Bureau of Agricultural Economics, except as noted.
The crop year is from Aug. 1 to July 31. For the United States prior to 1914 the figures apply to the year beginning Sept. 1.

TABLE 115.—*Cotton: Monthly marketings by farmers, 1923–24 to 1932–33* [1]

Year	Percentage of sales during—												
	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Year
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
1923–24	4.1	16.3	24.6	24.9	13.3	5.8	3.1	2.4	1.7	1.3	.9	1.6	100.0
1924–25	3.3	15.2	25.2	22.3	14.5	7.0	5.3	3.4	1.6	1.0	.6	.6	100.0
1925–26	6.5	19.3	23.1	17.6	12.0	6.5	4.2	3.1	2.3	1.7	2.1	1.6	100.0
1926–27	2.7	15.2	22.0	19.5	12.5	6.3	5.8	5.0	3.8	3.1	2.5	1.6	100.0
1927–28	6.6	20.0	23.8	17.3	9.7	4.2	4.0	4.2	3.1	2.7	2.3	2.1	100.0
1928–29	4.6	15.6	24.8	20.8	12.8	5.4	4.0	4.8	1.8	1.6	1.9	1.9	100.0
1929–30	5.7	18.2	28.3	20.6	11.8	4.2	2.6	2.3	1.4	1.1	1.6	2.2	100.0
1930–31	7.7	19.0	25.6	20.3	11.7	3.9	2.8	2.4	1.8	1.6	1.8	1.4	100.0
1931–32	2.9	13.4	23.9	20.5	13.6	6.3	5.9	5.2	2.6	1.7	1.8	2.2	100.0
1932–33	4.1	14.3	23.0	19.9	10.9	4.0	3.3	3.4	4.9	5.7	3.9	2.6	100.0

[1] As reported by about 7,500 cotton growers, supplemented by records of State weighers, cooperative associations, and cotton dealers.

Bureau of Agricultural Economics.

TABLE 116.—*Cotton: Grade, staple length, and tenderability of crop and carry-over, United States, 1929–30 to 1932–33*

Item	Crop				Carry-over Aug. 1[1]				
	1929–30	1930–31	1931–32	1932–33	1929	1930	1931	1932	1933
	1,000 bales	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*
Total [2]	14,547.8	13,755.5	16,628.9	12,709.6	2,129.8	4,321.7	6,262.7	9,576.8	8,079.5
Total American upland	14,519.0	13,732.2	16,615.2	12,701.3	2,122.6	4,313.6	6,246.0	9,560.3	8,069.7
Total American-Egyptian	28.8	23.3	13.7	8.3	7.2	8.1	16.7	16.5	9.8
Grade (American upland):									
Extra White:									
Strict Middling and above	348.2	338.5	251.5	241.5	3.9	54.4	55.0	73.7	53.9
Middling and below	120.5	162.1	184.3	218.5	.9	23.2	24.4	30.5	81.4
White:									
Middling Fair	.2	-----	-----	-----	-----	-----	-----	-----	-----
Strict Good Middling	38.7	13.0	10.9	1.2	2.8	3.6	3.2	3.2	2.2
Good Middling	863.9	892.3	940.0	251.3	77.0	159.7	219.9	454.7	202.1
Strict Middling	3,877.9	4,364.0	5,873.4	3,147.0	430.0	872.0	1,536.3	3,183.5	1,931.7
Middling	4,399.1	4,211.7	5,233.2	4,474.5	687.7	1,279.0	2,077.8	3,292.2	2,801.6
Strict Low Middling	1,881.7	1,749.7	1,759.2	1,569.2	348.0	583.0	928.3	1,083.3	1,210.1
Low Middling	805.4	576.9	640.3	330.3	132.6	286.8	273.9	243.1	255.0
Strict Good Ordinary	290.1	114.6	421.9	116.3	89.6	159.1	71.4	148.6	144.7
Good Ordinary	80.1	20.0	160.8	55.5	44.9	61.0	21.3	98.5	82.6
Spotted:									
Good Middling	47.1	147.2	115.3	193.6	9.1	32.5	93.1	102.4	102.6
Strict Middling	648.9	557.0	428.5	1,054.0	52.6	160.6	383.0	392.3	547.3
Middling	564.3	335.2	247.9	673.0	64.1	210.1	348.2	244.3	385.9
Strict Low Middling	234.4	143.7	185.2	217.5	44.3	136.6	95.3	59.0	101.3
Low Middling	72.6	31.2	71.3	78.8	24.8	63.6	27.1	31.4	56.8
Other [3]	189.4	62.9	37.3	44.3	46.4	130.9	66.8	62.4	49.9
No grade [4]	56.5	12.2	54.2	34.8	63.9	97.5	21.0	57.2	60.6
Staple length (American upland):									
Shorter than 7/8 inch	2,921.5	1,829.2	1,019.5	837.7	155.0	446.8	463.2	298.3	188.4
7/8 and 29/32 inch	5,533.7	5,327.7	6,593.3	4,786.5	650.9	1,445.6	2,615.7	3,392.6	2,503.6
15/16 and 31/32 inch	2,748.2	3,421.6	4,511.9	3,671.0	397.4	825.4	1,528.2	2,704.0	2,199.3
1 and 1 1/32 inches	1,693.6	1,725.9	2,557.1	1,822.0	395.1	783.0	849.2	1,657.6	1,774.6
1 1/16 and 1 3/32 inches	938.6	970.9	1,087.8	871.8	221.3	389.3	414.8	754.5	671.7
1 1/8 and 1 5/32 inches	556.1	393.3	590.0	622.1	170.1	283.4	269.5	546.7	562.9
1 3/16 inches and longer	127.3	63.6	255.6	90.2	132.8	140.1	105.4	206.6	169.2
Tenderability: [5]									
Total tenderable	10,992.5	11,623.2	14,833.9	11,489.1	1,747.0	3,416.3	5,543.3	8,882.7	7,437.4
Total untenderable	3,526.5	2,109.0	1,781.3	1,212.2	375.6	897.3	702.7	677.6	632.3

[1] Carry-over of foreign cotton not included (table 118).
[2] Report of Bureau of the Census.
[3] Includes Yellow Tinged, Light Yellow Stained, Yellow Stained, Gray, and Blue Stained.
[4] Includes bales not otherwise classified above.
[5] According to sec. 5, United States Cotton Futures Act.

Bureau of Agricultural Economics (see Statistical Bulletin 40 and subsequent reports for details).

TABLE 117.—*Cotton: Consumption by mills, United States, 1924–25 to 1933–34*

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
	1,000 bales	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*
1924–25	357	438	534	495	534	594	551	583	597	532	494	484	6,193
1925–26	451	483	544	544	576	582	565	636	578	516	519	462	6,456
1926–27	500	571	568	584	603	603	590	693	618	630	660	570	7,190
1927–28	634	628	614	627	539	586	573	581	525	577	510	440	6,834
1928–29	526	492	616	611	533	668	595	632	632	669	570	547	7,091
1929–30	559	546	640	541	453	576	494	508	532	473	405	379	6,106
1930–31	353	393	443	415	406	450	433	491	509	465	454	451	5,263
1931–32	425	464	461	425	415	435	451	489	367	332	323	279	4,866
1932–33	404	493	502	503	440	470	441	496	470	620	698	600	6,137
1933–34 [1]	589	499	504	475	348	508	478	544	513	-----	-----	-----	-----

[1] Preliminary.

Bureau of the Census.
Quantities are in running bales, round counted as half bales and foreign in 500-pound bales.

TABLE 118.—*Cotton: Supply and distribution, United States, 1913–14 to 1932–33*

Year beginning August	Supply: Carry-over from previous season: Foreign	Supply: Carry-over from previous season: Total	Supply: Production [1]	Supply: Imports	Supply: Total supply	Distribution: Consumption: Foreign	Distribution: Consumption: Total	Distribution: Exports	Distribution: Stocks on hand at end of year: Foreign	Distribution: Stocks on hand at end of year: Total	Distribution: Total distribution [2]
	1,000 bales	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*
1913–14	83	1,511	13,983	261	15,755	194	5,577	8,655	73	1,366	15,598
1914–15	73	1,366	15,906	382	17,654	222	5,597	8,323	145	3,936	17,856
1915–16	145	3,936	11,068	438	15,442	317	6,398	5,896	212	3,140	15,434
1916–17	212	3,140	11,364	292	14,796	318	6,789	5,300	143	2,720	14,809
1917–18	143	2,720	11,248	221	14,189	184	6,566	4,288	111	3,450	14,304
1918–19	111	3,450	11,906	202	15,558	176	5,766	5,592	83	4,287	15,645
1919–20	83	4,287	11,326	700	16,313	417	6,420	6,545	284	3,563	16,528
1920–21	284	3,563	13,271	226	17,060	216	4,893	5,745	174	6,534	17,172
1921–22	174	6,534	7,978	363	14,875	297	5,910	6,184	167	2,832	14,926
1922–23	167	2,832	9,729	470	13,031	344	6,666	4,823	196	2,325	13,814
1923–24	196	2,325	10,171	292	12,788	328	5,681	5,656	116	1,556	12,893
1924–25	116	1,556	13,639	313	15,508	276	6,193	8,005	106	1,610	15,808
1925–26	106	1,610	16,123	326	18,059	280	6,456	8,051	129	3,543	18,050
1926–27	129	3,543	17,755	401	21,699	309	7,190	10,927	99	3,762	21,879
1927–28	99	3,762	12,783	338	16,883	299	6,834	7,540	111	2,536	16,910
1928–29	111	2,536	14,297	458	17,291	313	7,091	8,044	182	2,312	17,447
1929–30	182	2,312	14,548	378	17,238	302	6,106	6,690	209	4,530	17,326
1930–31	209	4,530	13,756	108	18,394	179	5,263	6,760	107	6,370	18,393
1931–32	107	6,370	16,629	132	23,131	122	4,866	8,708	97	9,678	23,252
1932–33	97	9,678	12,710	130	22,518	133	6,137	8,419	87	8,170	22,726

[1] Production is expressed in running bales in this table and therefore the figures are not the same as those shown in tables where bales of 500 pounds gross weight are used. Consumption and carry-over statistics for American cotton are available only in running bales, and therefore production and exports are shown in running bales.

[2] Total distribution usually is greater than total supply due principally to the inclusion, in all distribution items, of the "city crop", which consists of rebaled samples and pickings from cotton damaged by fire and weather.

Bureau of Agricultural Economics; compiled from Bureau of Census reports.

Quantities are in running bales, round bales counted as half bales and foreign in 500-pound bales.

TABLE 119.—*Cotton: Mill consumption of American and other growths in the world, United States, and foreign countries, 1913–14 to 1932–33*

Year beginning August [1]	World: All growths	World: American [2]	World: Other growths	United States: All growths	United States: American [2]	United States: Other growths	Foreign countries: All growths	Foreign countries: American [2]	Foreign countries: Other growths
	1,000 bales [3]	*1,000 bales* [3]	*1,000 bales* [3]	*1,000 bales* [3]	*1,000 bales* [3]	*1,000 bales* [3]	*1,000 bales* [3]	*1,000 bales* [3]	*1,000 bales* [3]
1913–14	22,200	13,825	8,375	5,577	5,383	194	16,623	8,442	8,181
1914–15	20,671	13,249	7,422	5,597	5,375	222	15,074	7,874	7,200
1915–16	21,978	13,039	8,939	6,398	6,081	317	15,580	6,958	8,622
1916–17	21,109	12,561	8,548	6,789	6,470	319	14,320	6,091	8,229
1917–18	18,516	10,871	7,645	6,566	6,382	184	11,950	4,489	7,461
1918–19	16,705	9,909	6,796	5,766	5,590	176	10,939	4,319	6,620
1919–20	19,300	11,898	7,402	6,420	6,003	417	12,880	5,895	6,985
1920–21	16,905	10,268	6,637	4,893	4,677	216	12,012	5,591	6,421
1921–22	19,990	12,209	7,781	5,910	5,613	297	14,080	6,596	7,484
1922–23	21,325	12,446	8,879	6,666	6,322	344	14,659	6,124	8,535
1923–24	19,982	10,917	9,065	5,681	5,353	328	14,301	5,564	8,737
1924–25	22,642	13,311	9,331	6,193	5,917	276	16,449	7,394	9,055
1925–26	23,930	14,010	9,920	6,456	6,176	280	17,474	7,834	9,640
1926–27	25,869	15,748	10,121	7,190	6,880	310	18,679	8,868	9,811
1927–28	25,285	15,576	9,709	6,834	6,535	299	18,451	9,041	9,410
1928–29	25,782	15,226	10,556	7,091	6,778	313	18,691	8,448	10,243
1929–30	24,878	13,021	11,857	6,106	5,803	303	18,772	7,218	11,554
1930–31	22,402	11,113	11,289	5,263	5,084	179	17,139	6,029	11,110
1931–32	22,896	12,506	10,390	4,866	4,744	122	18,030	7,762	10,268
1932–33	24,986	14,405	10,581	6,137	6,004	133	18,849	8,401	10,448

[1] Year beginning Aug. 1, except 1913, which is the year beginning Sept. 1.

[2] "American" cotton means cotton which is grown in the United States.

[3] American in running bales and other growths in bales of 478 pounds net. Prior to 1919–20 the quantities given for world consumption of all growths were reported in bales of 500 pounds net and have been converted to equivalent 478-pound bales.

Bureau of Agricultural Economics; compiled from reports of the Bureau of the Census except consumption figures for American cotton in foreign countries, which are compiled from the New York Cotton Exchange Service Basic Data, 1933–34, p. 37.

The figures for the consumption of "other growths" in the world and in foreign countries were computed by deduction.

TABLE 120.—*Cotton: International trade, average 1925–26 to 1929–30, annual 1929–30 to 1932–33*

Country	Year beginning July									
	Average, 1925–26 to 1929–30		1929–30		1930–31		1931–32		1932–33[1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*
United States	8, 579	399	7, 096	414	7, 048	107	8, 989	139	8, 647	133
British India	2, 938	176	3, 270	117	3, 152	388	1, 565	476	2, 126	193
Egypt	1, 484	0	1, 394	0	1, 284	0	1, 652	0	1, 274	0
Brazil	119	0	290	0	109	0	40	0	5	0
Argentina	88	[2] 1	129	------	107	1	123	0	122	0
Total	13, 208	576	12, 179	531	11, 700	496	12, 369	615	12, 174	326
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	0	3, 070	0	2, 648	0	2, 172	0	2, 475	0	2, 448
Japan	0	3, 061	0	2, 859	0	2, 777	0	3, 628	0	3, 089
Germany	325	1, 900	393	1, 780	358	1, 645	350	1, 666	270	1, 771
France	100	1, 641	50	1, 656	43	1, 669	47	789	24	1, 409
Italy	1	1, 053	2	1, 103	1	791	0	857	0	898
China [3]	289	636	263	701	230	964	220	1, 298	185	1, 036
Czechoslovakia	4	567	1	518	1	450	1	395	0	340
Belgium	14	400	21	451	38	357	73	300	61	367
Poland	0	283	0	225	0	282	0	218	0	243
Canada	0	271	0	218	0	209	0	202	0	191
Netherlands	2	192	1	214	1	215	2	189	1	152
Austria	1	149	1	119	0	99	0	115	0	88
Switzerland	0	141	0	136	0	123	2	109	0	117
Sweden	0	106	0	105	0	96	0	121	0	109
Total	736	13, 470	732	12, 733	672	11, 849	695	12, 362	541	12, 258

[1] Preliminary.
[2] 3-year average.
[3] Calendar year.

Bureau of Agricultural Economics; official sources except where otherwise noted.
Bales of 500 pounds gross weight or 478 pounds net. The figures for cotton refer to ginned and unginned cotton, but do not include linters, mill waste, cotton batting, scarto (Egyptian and Sudan), when separately stated. Wherever unginned cotton has been separately stated in the original reports it has been reduced to ginned cotton in this statement at the ratio of 3 pounds unginned to 1 pound ginned.

TABLE 121.—*Cotton: Average price per pound received by producers, United States, 1924–25 to 1933–34*

Year	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	27. 8	22. 2	23. 1	22. 5	22. 2	22. 7	23. 0	24. 5	23. 7	23. 0	23. 0	23. 4	22. 9
1925–26	23. 4	22. 5	21. 5	18. 1	17. 4	17. 4	17. 6	16. 5	16. 6	16. 0	16. 1	15. 4	19. 6
1926–27	16. 1	16. 8	11. 7	11. 0	10. 0	10. 6	11. 5	12. 5	12. 3	13. 9	14. 8	15. 5	12. 5
1927–28	17. 1	22. 5	21. 0	20. 0	18. 7	18. 6	17. 0	17. 8	18. 7	20. 1	19. 7	21. 0	20. 2
1928–29	18. 8	17. 6	18. 1	17. 8	18. 0	17. 9	18. 0	18. 8	18. 5	18. 0	17. 9	17. 8	18. 0
1929–30	18. 0	18. 2	17. 5	16. 2	16. 0	15. 8	14. 8	13. 8	14. 7	14. 5	14. 0	11. 9	16. 8
1930–31	11. 4	9. 9	9. 2	9. 6	8. 7	8. 6	9. 1	9. 6	9. 3	8. 8	7. 7	8. 5	9. 5
1931–32	6. 3	5. 9	5. 3	6. 1	5. 5	5. 6	5. 8	6. 2	5. 7	5. 2	4. 6	5. 1	5. 7
1932–33	6. 5	7. 2	6. 4	5. 9	5. 4	5. 6	5. 5	6. 1	6. 1	8. 2	8. 7	10. 6	6. 5
1933–34	8. 8	8. 8	9. 0	9. 6	9. 6	------	------	------	------	------	------	------	--------

Bureau of Agricultural Economics. Based upon returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; yearly price obtained by weighting monthly prices by bales marketed monthly.

TABLE 122.—*Cotton: Middling, ⅞-inch: Average spot price per pound at 10 designated markets, 1915–16 to 1932–33*

Year beginning August	Norfolk	Augusta	Savannah	Montgomery	New Orleans	Memphis	Little Rock	Dallas	Houston	Galveston	Average of 10 markets[1]
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1915–16	11.62	11.56	11.72	11.37	11.68	11.83	11.84	11.51	12.00	12.06	11.72
1916–17	18.85	19.07	[2] 19.54	18.86	18.84	19.08	18.89	18.43	18.92	19.06	[3] 18.96
1917–18	28.82	29.01	29.29	29.15	28.96	29.49	29.05	28.47	28.85	29.06	29.02
1918–19	28.74	29.21	30.02	29.28	29.87	30.11	29.75	29.64	30.26	30.78	29.76
1919–20	37.32	37.93	38.22	37.52	38.21	38.70	38.38	38.95	38.78	39.41	38.34
1920–21	16.92	16.62	17.20	16.37	16.55	17.20	16.69	15.79	16.33	16.89	16.66
1921–22	18.00	17.97	18.12	17.48	17.92	18.38	18.12	17.84	18.46	18.64	18.09
1922–23	25.87	25.92	25.87	25.49	25.94	26.21	25.78	25.31	25.94	26.03	25.83
1923–24	30.15	30.06	30.00	29.82	30.33	30.42	30.22	29.66	30.28	30.48	30.14
1924–25	24.38	24.24	24.27	23.71	24.21	24.19	24.27	23.91	24.50	24.57	24.22
1925–26	19.78	19.53	19.61	18.98	19.71	19.77	19.70	19.64	20.00	20.12	19.68
1926–27	14.56	14.37	14.46	13.85	14.74	14.31	14.29	13.91	14.73	14.79	14.40
1927–28	20.17	20.09	20.06	19.46	19.98	19.44	19.31	19.04	19.76	19.84	19.72
1928–29	19.07	18.95	18.92	18.42	18.98	18.31	18.29	18.19	18.74	18.82	18.67
1929–30	16.34	15.97	15.98	15.41	16.16	15.43	15.33	15.32	15.89	16.00	15.79
1930–31	10.11	9.73	9.81	9.28	10.08	9.22	9.10	9.19	9.74	9.82	9.61
1931–32	6.23	6.08	6.09	5.69	6.20	5.59	5.48	5.57	5.93	6.03	5.89
1932–33	7.38	7.37	7.25	6.98	7.26	7.04	6.96	6.84	7.18	7.18	7.15

[1] Averages of monthly averages of 10 markets.
[2] 11 months. Comparable data not available for February.
[3] Excludes Savannah for February.

Bureau of Agricultural Economics; Compiled from the daily reports to the Bureau of Agricultural Economics from the cotton exchanges of the various markets.

TABLE 123.—*Cotton, Middling ⅞ inch: Average spot price per pound at New Orleans and 10 markets combined, 1919–20 to 1933–34*

Market and year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average
New Orleans:	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1919–20	31.38	30.38	35.28	39.58	39.89	40.28	39.39	40.69	41.41	40.31	40.49	39.41	38.21
1920–21	34.03	27.48	20.95	17.65	14.59	14.53	12.85	11.08	11.17	11.80	11.03	11.49	16.55
1921–22	12.78	19.35	18.99	17.27	17.16	16.53	16.36	16.74	16.80	19.31	21.68	22.01	17.92
1922–23	21.55	20.74	22.05	25.34	25.48	27.51	28.78	30.43	28.42	26.63	28.61	25.73	25.94
1923–24	24.22	27.71	29.18	33.68	34.88	33.93	31.90	28.74	30.41	30.70	29.43	29.23	30.33
1924–25	26.65	22.79	23.48	23.95	23.66	23.66	24.61	25.52	24.52	23.54	24.07	24.05	24.21
1925–26	23.07	23.09	20.86	19.82	19.27	20.26	19.83	18.35	18.11	18.06	17.54	18.24	19.71
1926–27	18.01	16.14	12.68	12.52	12.22	13.17	13.82	14.10	14.42	15.68	16.47	17.63	14.74
1927–28	19.36	21.53	20.73	19.99	19.26	18.72	17.90	18.94	20.07	20.77	21.10	21.45	19.98
1928–29	19.00	17.94	18.79	19.00	19.36	19.14	19.07	19.97	19.23	18.74	18.81	18.73	18.98
1929–30	18.57	18.45	18.08	17.19	17.04	16.84	15.25	14.87	15.79	15.60	13.56	12.65	16.16
1930–31	11.56	10.58	10.40	10.63	9.65	9.87	10.63	10.59	9.95	9.08	8.86	9.10	10.08
1931–32	7.02	6.20	6.06	6.32	6.10	6.50	6.69	6.74	6.12	5.70	5.18	5.73	6.20
1932–33	7.29	7.58	6.51	6.12	5.84	6.12	5.92	6.32	6.88	8.58	9.33	10.68	7.26
1933–34	9.48	9.38	9.29	9.74	9.94	------	------	------	------	------	------	------	------
10 markets combined:													
1919–20	31.50	30.30	35.44	39.59	39.70	40.46	39.49	40.68	41.74	41.01	40.58	39.58	38.34
1920–21	34.78	28.24	21.38	17.83	14.63	14.42	12.93	11.19	11.01	11.55	10.77	11.13	16.66
1921–22	12.53	19.50	19.25	17.43	17.47	17.04	16.73	17.12	16.92	19.22	21.58	22.27	18.09
1922–23	21.53	20.72	22.11	25.20	25.40	27.39	28.62	30.21	28.28	26.47	28.20	25.87	25.83
1923–24	24.22	27.67	28.90	33.30	34.39	33.69	31.73	28.54	30.25	30.32	29.37	29.32	30.14
1924–25	27.16	22.74	23.29	23.63	23.40	23.52	24.51	25.51	24.56	23.61	24.19	24.55	24.22
1925–26	23.35	23.23	20.95	19.92	19.31	20.04	19.63	18.33	18.05	17.95	17.52	17.92	19.68
1926–27	17.65	15.96	12.40	12.17	11.81	12.72	13.45	13.74	14.08	15.38	16.10	17.34	14.40
1927–28	19.16	21.19	20.35	19.74	18.99	18.44	17.60	18.76	19.76	20.54	20.82	21.25	19.72
1928–29	18.72	17.72	18.46	18.70	19.07	18.88	18.86	19.78	18.95	18.23	18.36	18.29	18.67
1929–30	18.04	18.01	17.62	16.75	16.64	16.56	15.11	14.74	15.40	15.12	13.21	12.21	15.79
1930–31	11.14	10.15	9.82	10.09	9.16	9.37	10.12	10.15	9.50	8.70	8.42	8.66	9.61
1931–32	6.57	5.83	5.75	5.95	5.78	6.15	6.40	6.44	5.83	5.41	4.99	5.54	5.89
1932–33	7.08	7.40	6.37	6.03	5.72	6.01	5.85	6.19	6.84	8.40	9.28	10.52	7.15
1933–34	9.24	9.19	9.16	9.65	9.87	------	------	------	------	------	------	------	------

Bureau of Agricultural Economics; compiled from daily reports to the Bureau from the cotton exchanges of the various markets. Data for earlier years appear in previous issues of the Yearbook.

TABLE 124.—*Cotton: Average discounts and premiums for staples shorter or longer than ⅞-inch Middling spot cotton, 1923–24 to 1932–33*

Year beginning August	Discount for 13/16 inch [1]	⅞-inch, average price per pound [2]	Premiums for—[3] 15/16 inch	1 inch	1 1/16 inches	1⅛ inches	1 3/16 inches	1¼ inches
	Points [4]	*Cents*	*Points* [4]	*Points* [4]	*Points* [4]	*Points* [4]	*Points* [4]	*Points* [4]
1923–24	----------	30.14	42	63	80	150	250	371
1924–25	85	24.22	58	82	176	396	621	898
1925–26	125	19.68	76	106	202	396	635	935
1926–27	100	14.40	66	106	159	266	480	860
1927–28	94	19.72	37	93	166	275	409	631
1928–29	67	18.67	33	96	177	237	332	587
1929–30	108	15.79	45	118	182	232	347	630
1930–31	95	9.61	41	91	154	192	317	670
1931–32	36	5.89	21	51	93	154	244	[5] 425
1932–33	21	7.15	14	39	75	106	[5] 201	[5] 425

[1] Average of New Orleans, Houston, and Galveston, calculated from actual sales and partly estimated.
[2] Average for the 10 designated spot markets.
[3] Average of New Orleans and Memphis for 1 1/16 inches and longer and for 15/16 inch and 1 inch from 1923–24 to 1926–27, inclusive. Average of the 6 designated markets (New Orleans, Memphis, Houston, Galveston, Dallas, and Little Rock) for 15/16 inch and 1 inch from 1927–28 to 1932–33, inclusive.
[4] Hundredths of a cent a pound.
[5] Memphis only.

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TABLE 125.—*Cotton: Average spot price per pound at Liverpool, by kind and by months, 1924–25 to 1933–34*

Description and year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average
American Middling:	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	31.63	26.49	26.14	26.08	25.73	26.08	27.14	28.04	26.85	25.83	27.34	27.76	27.09
1925–26	26.29	26.25	23.16	21.40	20.46	21.68	21.41	20.32	20.38	20.72	19.97	19.77	21.82
1926–27	19.69	19.34	14.52	14.07	13.46	14.56	15.55	15.65	16.14	17.90	18.49	19.43	16.57
1927–28	21.09	24.17	23.36	22.73	21.98	21.68	20.54	21.80	22.75	23.52	23.70	24.43	22.65
1928–29	21.39	20.87	21.86	21.62	21.57	21.39	21.09	22.32	21.57	20.62	20.89	21.09	21.36
1929–30	21.01	20.93	20.52	19.61	19.22	19.00	17.36	16.83	17.72	17.46	16.16	15.47	18.44
1930–31	14.09	12.63	11.88	12.13	10.99	11.19	12.06	12.09	11.42	10.56	10.00	10.26	11.61
1931–32	7.91	7.70	7.65	7.70	7.38	7.78	8.25	8.31	7.59	6.92	6.43	6.92	7.54
1932–33	8.11	8.87	7.91	7.52	7.09	7.37	7.10	7.29	8.01	9.88	10.77	12.32	8.52
1933–34	10.96	10.67	10.66	11.24	------	------	------	------	------	------	------	------	------
Indian Oomra, No. 1, Fine:													
1924–25	20.29	22.38	22.77	28.23	30.76	30.24	28.16	25.99	27.35	26.48	26.49	25.43	26.21
1925–26	22.30	22.89	20.80	18.98	17.62	18.17	17.56	16.20	15.96	16.38	15.59	15.70	18.18
1926–27	16.06	15.98	13.08	12.69	12.17	12.98	13.79	13.87	14.32	15.92	16.65	17.46	14.58
1927–28	18.29	20.70	19.79	18.70	18.13	17.88	16.99	17.97	18.37	18.88	19.08	19.14	18.66
1928–29	16.57	15.65	16.26	16.53	16.99	16.75	16.42	17.50	16.14	15.33	15.69	15.73	16.30
1929–30	15.73	15.71	15.37	14.50	14.32	13.87	12.09	11.36	11.66	11.36	10.18	9.21	12.95
1930–31	8.23	8.15	8.17	8.68	8.74	7.91	8.84	8.84	8.33	7.73	7.62	8.05	8.27
1931–32	6.45	6.19	6.50	6.91	6.75	7.55	7.81	7.61	6.92	6.28	5.77	6.32	6.76
1932–33	7.27	7.87	6.95	6.73	6.32	6.61	6.33	6.32	6.44	7.96	8.70	9.98	7.29
1933–34	8.78	8.55	8.44	8.75	------	------	------	------	------	------	------	------	------
Egyptian Sakellaridis, Fully Good Fair:													
1924–25	48.28	46.30	47.23	49.63	55.60	60.71	69.40	73.39	63.32	62.00	64.36	65.04	58.77
1925–26	61.13	56.96	50.91	41.51	35.76	37.19	36.62	32.32	32.38	34.07	33.94	32.85	40.47
1926–27	32.04	36.32	31.21	30.23	27.82	27.96	27.82	27.46	28.06	33.15	34.41	37.92	31.20
1927–28	39.13	40.57	38.51	37.80	35.48	35.61	35.38	39.90	42.97	43.49	43.03	40.64	39.38
1928–29	37.61	36.54	36.74	37.35	39.11	38.83	36.52	38.69	37.55	35.79	33.44	33.78	36.83
1929–30	34.07	34.90	32.16	30.27	28.87	29.26	27.62	28.02	28.79	28.37	25.79	25.10	29.44
1930–31	23.22	20.89	19.61	19.51	16.22	17.01	19.47	19.59	17.74	16.59	15.63	15.57	18.42
1931–32	12.15	11.82	11.60	11.50	10.05	10.38	10.93	11.25	10.30	9.33	8.93	10.04	10.69
1932–33	11.47	12.60	11.31	10.58	9.64	10.36	10.15	10.18	11.04	13.24	14.35	16.31	11.77
1933–34	14.75	14.29	13.85	15.19	------	------	------	------	------	------	------	------	------
Egyptian Uppers, Fully Good Fair:													
1924–25	44.38	36.63	33.35	34.28	36.31	39.11	39.35	41.87	40.44	38.39	37.43	38.07	38.30
1925–26	37.01	36.11	34.36	31.68	29.44	28.92	27.46	25.18	24.88	25.24	25.18	24.25	29.14
1926–27	24.78	27.09	22.55	21.25	19.06	20.76	21.41	21.82	22.10	25.63	27.19	28.98	23.55
1927–28	30.52	31.90	30.60	30.09	28.45	28.06	26.44	28.77	30.98	31.33	30.15	29.20	29.71
1928–29	25.91	24.11	25.18	24.84	24.84	24.94	24.43	26.12	25.08	23.38	22.97	23.03	24.57
1929–30	22.89	23.54	22.45	21.60	21.23	21.29	20.66	20.52	21.13	20.80	19.45	19.47	21.25
1930–31	17.92	17.09	14.28	13.71	12.49	12.98	14.46	14.42	13.38	12.55	11.92	12.25	13.95
1931–32	9.51	9.55	8.93	8.97	8.20	8.81	9.53	9.83	9.00	8.21	7.90	8.74	8.93
1932–33	10.08	10.95	10.05	9.76	9.18	9.57	9.30	9.18	9.81	11.96	12.73	14.71	10.61
1933–34	13.32	12.61	12.10	12.55	------	------	------	------	------	------	------	------	------

Bureau of Agricultural Economics. Compiled from market reports of the Liverpool Cotton Association. Average of Friday's prices, except when Friday was a holiday, the prices on the preceding business day were used. Converted from pence to cents at the current rate of exchange. Prices in this table are revised and do not always agree with those published in Yearbooks prior to the 1933 issue.

TABLE 126.—*Cotton: Average premiums and discounts for grades[1] above and below Middling for the 10 designated spot markets, 1920–21 to 1932–33*

Year beginning August	Premiums for—				Middling,[1] average price per pound	Discounts for—			
	Middling Fair	Strict Good Middling	Good Middling	Strict Middling		Strict Low Middling	Low Middling	Strict Good Ordinary[2]	Good Ordinary[2]
	Points[3]	*Points*[3]	*Points*[3]	*Points*[3]	*Cents*	*Points*[3]	*Points*[3]	*Points*	*Points*[3]
1920–21	303	248	185	97	16.66	191	429	622	780
1921–22	201	155	101	55	18.09	75	177	283	384
1922–23	115	88	60	35	25.83	38	85	146	210
1923–24	166	135	105	65	30.14	97	212	333	449
1924–25	108	84	60	37	24.22	74	171	289	406
1925–26	124	98	73	50	19.68	110	268	432	563
1926–27	129	106	82	58	14.40	104	238	381	501
1927–28	100	76	51	33	19.72	51	114	197	284
1928–29	81	60	42	28	18.67	73	153	236	322
1929–30	92	76	61	41	15.79	74	170	278	376
1930–31	88	70	52	31	9.61	59	138	226	305
1931–32	70	56	41	24	5.89	29	64	101	138
1932–33	62	50	39	25	7.15	27	55	89	123

[1] White standards and ⅞-inch staple.
[2] These grades untenderable according to sec. 5 of the United States Cotton Futures Act
[3] Hundredths of a cent a pound.

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TABLE 127.—*Cottonseed and cottonseed products: Cottonseed production, weighted average price received by producers, farm value, quantity crushed, and products, 1919–20 to 1933–34*

Year beginning August	Cottonseed				Cottonseed products[1]			
	Production[2]	Weighted average price per ton received by producers, Dec. 1	Farm value	Quantity crushed[1]	Crude oil	Cake and meal	Linters	Hulls
	1,000 short tons	*Dollars*	*Dollars*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 running bales*	*1,000 short tons*
1919–20	5,074			4,013	606	1,817	595	1,143
1920–21	5,971			4,069	655	1,786	429	1,256
1921–22	3,531	28.79	101,577	3,008	465	1,355	382	937
1922–23	4,336	35.67	154,433	3,242	501	1,487	591	944
1923–24	4,502	42.99	193,576	3,308	490	1,518	640	941
1924–25	6,051	32.39	195,944	4,605	702	2,126	858	1,331
1925–26	7,150	27.28	195,042	5,558	809	2,597	1,044	1,547
1926–27	7,982	18.68	149,233	6,306	944	2,840	1,042	1,854
1927–28	5,759	36.80	211,897	4,654	738	2,093	875	1,320
1928–29	6,435	36.28	233,415	5,061	802	2,282	1,086	1,368
1929–30	6,590	30.33	199,885	5,016	786	2,232	1,038	1,384
1930–31	6,190	21.61	133,785	4,715	721	2,165	824	1,304
1931–32	7,603	10.44	79,340	5,328	847	2,402	876	1,511
1932–33	5,782	9.27	53,627	4,619	723	2,093	741	1,312
1933–34[3]	5,858	13.58	79,532					

[1] Crushings and products are not limited to the crop specified.
[2] Estimated from the production of lint cotton, assuming 65 pounds of seed for each 35 pounds of lint. Refers to the cotton crop of the year stated.
[3] Preliminary.

Bureau of Agricultural Economics; compiled from reports of the Bureau of the Census, except farm price nd value of cottonseed, which are from the Division of Crop and Livestock Estimates.

TABLE 128.—*Cottonseed: Production and weighted average price per ton received by producers, by States, average 1927–31, annual 1932 and 1933*

State	Production[1] from crop of—			Price for crop of—		State	Production[1] from crop of—			Price for crop of—	
	Average, 1927–31	1932	1933[2]	1932	1933[3]		Average, 1927–31	1932	1933[2]	1932	1933[3]
	1,000 short tons	*1,000 short tons*	*1,000 short tons*	*Dollars*	*Dollars*		*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*Dollars*	*Dollars*
Mo	82	136	109	9.74	11.20	La	325	271	216	10.08	12.60
Va	20	15	17	10.91	14.80	Okla	489	482	572	8.77	11.00
N.Car	351	293	306	12.08	14.40	Tex	2,027	2,006	1,994	9.06	12.90
S.Car	381	318	329	12.39	14.80	N.Mex	40	32	38	8.57	11.30
Ga	573	379	493	12.73	14.70	Ariz	59	31	36	8.73	12.30
Fla	16	7	12	11.86	14.30	Calif	85	58	96	10.86	11.50
Tenn	202	213	204	10.14	13.20	All other	4	6	4	10.22	12.89
Ala	579	421	435	11.97	14.10						
Miss	708	524	524	12.19	14.80	U.S	6,515	5,782	5,858	10.36	13.25
Ark	574	590	473	10.24	12.90						

[1] Computed from lint production, assuming 65 pounds of cottonseed for each 35 net pounds of lint.
[2] Preliminary.
[3] Average price for 5 months.
Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 129.—*Cottonseed oil: International trade, average 1925–29, annual 1929–32*

Country	Calendar year									
	Average, 1925–29		1929		1930		1931		1932[1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
United States	49,815	0	26,075	0	28,297	0	22,578	0	55,767	0
United Kingdom	46,146	18,657	53,715	23,090	38,835	35,564	33,378	13,803	38,089	13,702
Egypt	22,724	80	26,181	1	24,717		17,637		18,885	0
Peru	9,526	0	3,047	0	6,947	0	1,923	0	911	0
Brazil	352	23	1	4	2,314	2	0	2	10	7
Algeria	38	29	46	5	[2] 43	[2] 48	[2] 8	[2] 2		
Total	128,601	18,789	109,065	23,100	101,153	35,614	75,524	13,807	113,662	13,709
PRINCIPAL IMPORTING COUNTRIES										
Canada	0	39,439	0	38,675	0	26,071	0	17,205	0	54,834
Germany	283	19,296	912	13,649	1,472	12,293	277	9,216	75	10,040
Netherlands	6,481	16,831	3,815	7,474	119	810	51	4,323	45	1,810
France	34	7,792	48	8,122	57	8,103	7	6,789	1	5,677
Denmark	809	6,624	1,369	7,378	786	4,686	484	5,919	517	3,104
Norway	0	4,474	0	2,648	0	1,363	0	582	0	1,655
Cuba	0	4,099	0	414	0	1,824	0	1,565	0	
Sweden	447	2,824	473	3,071	0	3,082	0	2,370	0	5,428
Irish Free State	0	2,356	0	5,274	0	4,170	0	2,982	0	4,126
Belgium	15	2,247	11	1,117	102	660	2	544	0	517
Australia [2]	1	1,914	0	2,651	103	1,465	0	1,313		
Greece	0	1,478	0	494	0	36	0	1		
Argentina	53	1,470	27	1,340	6	147	4	50	0	12
Japan	600	[3] 831	484	973	2,013	1,148	10	1,154	12	1,751
Gambia [2]	9	622	39	453	0	715	0	385		
Yugoslavia	0	498	0	181	0	47	0	69	0	7
Uruguay	0	298	0	65	0	15	0	[2] 16		
Czechoslovakia	0	267	0	328	0	217	47	439	22	716
Italy	2	216	5	358	1	290	0	287	0	98
Total	8,675	113,676	7,183	94,665	4,659	67,142	882	55,209	672	89,775

[1] Preliminary.
[2] International Yearbook of Agricultural Statistics.
[3] 4-year average.
Bureau of Agricultural Economics; official sources except where otherwise noted.

TABLE 130.—*Cottonseed: Average price per ton received by producers. United States, 1924–25 to 1933–34*

Year	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Weighted average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924–25	38.44	31.74	31.95	33.57	35.48	37.50	37.14	38.21	37.94	38.61	36.66	36.41	34.08
1925–26	36.52	33.48	32.82	27.64	27.87	28.40	29.06	29.47	31.51	30.84	31.89	31.31	30.82
1926–27	29.73	27.38	20.06	18.66	18.05	18.55	22.39	25.43	25.80	26.05	26.27	26.59	21.55
1927–28	25.95	34.41	36.60	37.51	37.14	37.40	37.44	37.77	39.40	43.00	41.25	39.27	35.94
1928–29	36.87	31.02	34.08	37.17	37.74	38.05	38.73	39.36	38.94	37.78	35.83	34.84	35.26
1929–30	32.69	31.03	31.40	30.75	30.31	28.95	28.89	28.63	29.74	30.61	29.66	27.35	30.43
1930–31	23.99	23.89	20.73	21.26	21.28	21.25	21.87	22.43	22.85	22.32	20.32	19.52	21.93
1931–32	14.71	8.93	7.66	11.61	11.01	10.38	10.12	10.17	9.78	9.66	8.85	8.61	9.51
1932–33	9.13	11.28	10.45	9.54	8.87	8.81	8.91	9.22	10.03	12.00	12.96	16.59	10.36
1933–34	15.65	12.11	12.58	13.67	15.35	------	------	------	------	------	------	------	------

Bureau of Agricultural Economics. Based upon returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; yearly price obtained by weighting monthly prices by monthly receipts at oil mills.

TABLE 131.—*Cottonseed oil, crude: Average price per pound in tanks, f.o.b. southeastern mills, 1924–25 to 1933–34*

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	11.30	8.34	9.03	8.85	9.69	9.48	9.20	9.95	10.00	9.34	9.75	------
1925–26	------	9.14	8.55	8.90	8.98	9.75	10.71	11.00	11.22	12.17	------	------
1926–27	10.88	8.19	7.44	6.64	6.36	6.94	8.20	7.73	7.33	7.74	8.04	------
1927–28	8.70	9.25	9.45	9.05	8.72	8.48	7.75	8.44	8.75	8.88	------	------
1928–29	------	8.16	8.14	8.24	8.38	8.63	9.12	9.00	8.37	7.94	------	------
1929–30	------	7.66	7.33	7.38	7.26	7.24	7.40	7.13	7.48	7.32	6.95	7.00
1930–31	6.76	6.48	6.14	6.35	6.12	6.18	6.37	6.75	6.72	6.38	6.27	------
1931–32	------	3.60	3.54	3.80	[1] 3.33	3.24	3.22	3.12	2.61	2.56	2.86	3.24
1932–33	3.71	3.71	3.25	3.00	2.72	2.90	2.74	2.88	3.18	4.16	4.38	5.45
1933–34	4.48	3.57	3.23	3.58	3.43	------	------	------	------	------	------	------

[1] Less than 10 quotations during the month. Other quotations were bids.

Bureau of Agricultural Economics; compiled from the Oil, Paint, and Drug Reporter; prices, 1924–25 to 1927–28 are averages of weekly quotations; beginning 1928–29, averages of daily quotations; October 1932–June 1933, from New York Journal of Commerce, average of Saturday quotations during the month. Data for 1909–10 to 1923–24 are available in the 1930 Yearbook, p. 695, table 149.

TABLE 132.—*Cottonseed oil, prime summer yellow: Average spot price per pound, New York, 1924–25 to 1933–34* [1]

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	13.83	10.54	11.00	10.86	11.41	11.10	10.69	11.10	11.08	10.51	10.75	11.38	11.19
1925–26	11.09	10.81	9.86	10.32	10.47	11.33	11.28	12.24	12.38	14.48	15.38	14.99	12.05
1926–27	12.99	11.42	8.82	8.20	8.22	8.50	9.31	9.39	8.78	9.09	9.19	9.57	9.46
1927–28	9.89	10.74	10.83	10.55	10.06	10.02	9.27	9.64	10.04	10.52	10.22	10.03	10.15
1928–29	9.44	10.03	9.84	9.69	10.21	20.33	10.88	10.74	10.11	9.75	9.64	9.62	10.02
1929–30	9.27	9.19	9.23	9.01	8.77	8.46	8.46	8.41	8.80	8.76	8.23	7.99	8.72
1930–31	8.34	8.20	7.60	7.57	7.28	7.20	7.29	7.58	7.55	6.99	6.76	7.00	7.45
1931–32	5.77	4.39	4.48	4.55	4.09	4.08	3.95	3.96	3.46	3.18	3.34	3.83	4.09
1932–33	4.51	4.48	3.97	3.75	3.48	3.62	3.53	3.77	4.08	4.99	5.48	6.17	4.32
1933–34	5.16	4.61	4.19	[2] 4.50	[2] 4.30	------	------	------	------	------	------	------	------

[1] Prices through July 1930 quoted in barrels; beginning August 1930, quoted in tanks.
[2] Prices from Bureau of Labor Statistics.

Bureau of Agricultural Economics; compiled from Oil, Paint, and Drug Reporter, average of daily ranges.
Data for 1890–91 to 1923–24 are available in 1924 Yearbook, p. 766, table 323.

TABLE 133.—*Cottonseed meal, 41 percent protein: Price per ton, Memphis, 1924–25 to 1933–34*

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924–25	43.60	41.40	40.75	38.75	39.25	37.70	35.75	35.90	36.80	38.40	38.80	41.50	39.00
1925–26	44.10	36.90	34.40	34.10	34.00	32.60	31.10	31.00	31.90	30.70	31.00	31.10	33.60
1926–27	32.10	28.90	23.90	23.70	24.50	30.10	33.50	32.40	32.50	34.00	37.40	36.00	30.75
1927–28	(1)	37.40	37.70	39.60	41.40	40.40	45.10	49.30	55.50	61.50	(1)	41.50	------
1928–29	(1)	38.40	43.90	44.20	45.60	44.90	44.40	42.70	38.75	35.50	34.25	38.75	------
1929–30	(1)	41.00	39.30	37.80	37.00	35.40	33.50	33.60	36.75	38.00	35.50	33.60	------
1930–31	36.25	30.90	27.50	27.50	25.60	25.75	24.90	26.40	26.25	24.60	22.40	21.20	26.60
1931–32	17.30	13.80	13.20	16.60	14.45	13.80	12.78	12.44	12.85	12.65	11.50	13.15	13.71
1932–33	17.35	16.75	14.40	13.35	11.80	11.85	12.00	13.10	15.20	17.50	18.60	27.65	15.80
1933–34	22.90	18.40	16.70	19.25	19.25	------	------	------	------	------	------	------	------

[1] Not reported.

Bureau of Agricultural Economics; compiled from reports made to the Bureau by its representative in the market.

TABLE 134.—*Cottonseed meal, 41 percent protein, bagged: Average price per ton at 9 markets, 1933*

Market	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
Boston	21.35	21.40	23.10	24.85	26.85	28.45	36.65	32.70	28.45	26.30	28.38	28.81
Philadelphia	20.45	20.20	21.90	23.40	26.05	27.65	35.50	32.30	27.15	25.40	27.50	27.63
Buffalo	18.40	18.25	19.65	21.40	23.30	25.20	34.00	30.10	25.00	23.00	25.00	25.44
Pittsburgh	18.10	17.70	19.20	21.45	23.50	24.80	32.50	31.80	25.90	23.10	------	------
Cincinnati	17.00	16.60	18.00	19.65	21.90	22.55	31.15	29.20	23.65	21.55	23.94	24.25
Chicago	16.95	16.40	18.65	19.80	22.30	23.30	33.50	28.90	24.20	21.75	24.44	24.25
Los Angeles	20.20	19.50	21.40	20.95	23.65	25.50	31.00	27.80	------	22.10	22.50	22.00
St. Louis	14.80	14.80	16.70	18.20	20.70	20.95	31.65	27.40	22.20	20.55	22.81	22.75
San Francisco	21.25	20.95	22.25	22.65	25.35	26.50	31.15	30.90	26.15	24.00	22.63	22.50

Bureau of Agricultural Economics; compiled from reports made to the Bureau by its representatives in the various markets.

TABLE 135.—*Sugar beets: Acreage, production, average price per ton received by producers, and value, United States,*[1] *1912–33*

Year	Acreage harvested	Yield per acre	Production	Price per ton	Farm value, basis average price	Year	Acreage harvested	Yield per acre	Production	Price per ton	Farm value, basis average price
	1,000 acres	*Short tons*	*1,000 short tons*	*Dollars*	*1,000 dollars*		*1,000 acres*	*Short tons*	*1,000 short tons*	*Dollars*	*1,000 dollars*
1912	555	10.2	5,648	5.82	32,871	1923	657	10.7	7,006	8.99	62,965
1913	580	10.1	5,886	5.69	33,491	1924	816	9.2	7,508	7.95	59,689
1914	483	11.6	5,585	5.45	30,438	1925	648	11.4	7,381	6.39	47,137
1915	611	10.7	6,511	5.67	36,950	1926	677	10.7	7,223	7.61	54,964
1916	665	9.4	6,228	6.12	38,139	1927	721	10.8	7,753	7.67	59,455
1917	665	9.0	5,980	7.39	44,192	1928	644	11.0	7,101	7.11	50,477
1918	594	10.0	5,949	10.00	59,494	1929	688	10.6	7,315	7.08	51,804
1919	692	9.3	6,421	11.74	75,420	1930	776	11.9	9,199	7.14	65,698
1920	872	9.8	8,538	11.63	99,324	1931	713	11.1	7,903	5.94	46,948
1921	815	9.6	7,782	6.35	49,392	1932	764	11.9	9,070	5.26	47,705
1922	530	9.8	5,183	7.91	41,017	1933 [2]	984	11.3	11,085	5.32	58,988

[1] Most years from 1912 to 1923 include a small unknown quantity of beets grown in Canada for Michigan factories.
[2] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board, revised, 1924–28. See introductory text.

TABLE 136.—*Sugar beets: Acreage, yield, production, and average price per ton received by producers, by States, averages, and annual 1932 and 1933*

State	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1926–30	1932	1933 [1]	Average, 1924–30	1932	1933 [1]	Average, 1926–30	1932	1933 [1]	1932	1933 [1]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Short tons*	*Short tons*	*Short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*Dollars*	*Dollars*
Ohio	32	26	42	8.7	10.0	8.6	278	259	363	5.34	------
Michigan	79	122	154	7.3	10.0	8.0	551	1,215	1,236	5.73	------
Nebraska	84	66	88	12.7	13.3	12.1	1,034	877	1,068	4.58	------
Montana	35	54	68	10.7	13.7	12.4	386	739	842	5.39	------
Idaho	33	53	76	10.0	13.4	11.3	345	709	862	5.10	------
Wyoming	42	40	53	11.5	12.6	11.5	483	506	609	4.97	------
Colorado	212	156	211	12.8	11.4	12.4	2,801	1,777	2,624	4.62	------
Utah	49	56	73	11.5	15.1	12.0	569	846	878	4.77	------
California	53	104	108	9.8	12.4	14.5	559	1,288	1,568	6.62	------
Other [2]	81	87	111	8.7	9.8	9.3	712	854	1,035	5.22	------
United States	701	764	984	10.8	11.9	11.3	7,718	9,070	11,085	5.26	5.32

[1] Preliminary.
[2] States producing sugar beets for which figures are not shown above.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 137.—*Sugar beets: Acreage, yield per acre, production, and yield of sugar per short ton of beets sliced, in specified countries, average 1921–25, annual 1932 and 1933*

Country	Acreage			Yield per acre			Production			Yield of raw sugar per short ton of beets sliced		
	Average, 1921–25	1932	1933 [1]	Average, 1921–25	1932	1933 [1]	Average, 1921–25	1932	1933 [1]	Average, 1921–25	1932	1933 [2]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Short tons*	*Short tons*	*Short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*Lb.*	*Lb.*	*Lb.*
Canada	30	47	42	9.8	10.8	10.0	293	508	419	277	297	------
United States	693	764	984	10.1	11.9	11.3	6,965	9,070	11,085	298	329	------
United Kingdom	23	256	366	8.3	9.8	9.2	190	2,500	[3] 3,360	260	[2] 329	------
Sweden	94	101	124	12.3	17.0	14.4	1,160	1,713	1,791	312	[2] 310	334
Denmark	83	94	106	11.6	16.8	18.3	966	1,579	1,940	------	[2] 301	328
Netherlands	167	99	117	14.4	17.5	15.3	2,402	1,731	1,794	------	------	------
Belgium	170	132	131	12.8	14.5	13.4	2,173	1,914	1,753	------	[2] 277	289
France	413	658	649	10.8	12.7	11.1	4,472	8,367	7,226	266	------	------
Spain	184	209	193	8.8	10.7	12.8	1,610	2,243	2,480	248	------	------
Italy	207	207	202	12.8	13.3	11.7	2,646	2,750	2,366	220	283	284
Germany	982	669	751	10.8	13.0	12.6	10,595	8,681	9,457	321	322	340
Austria	35	105	115	9.0	10.7	10.3	316	1,125	1,183	323	325	322
Czechoslovakia	629	360	358	11.5	12.1	10.0	7,228	4,367	3,568	348	[2] 354	364
Hungary	133	105	108	8.2	8.9	9.6	1,085	936	1,038	271	295	329
Yugoslavia	71	82	53	7.6	8.7	9.9	540	711	523	------	263	314
Rumania	99	45	105	7.1	7.4	------	702	334	------	------	311	------
Poland	326	287	246	9.0	9.1	9.1	2,926	2,622	2,245	317	354	373
Russia	676	3,123	2,990	5.4	2.3	3.3	3,647	7,231	9,921	[4] 262	------	------
Other [5]	41	123	154	7.3	7.6	------	300	937	------	------	------	------
Total, countries reporting acreage and production all years	4,916	7,298	7,535	10.0	8.0	8.2	49,214	58,048	62,149	------	------	------
Total, all countries reporting	5,056	7,466	7,794	9.9	7.9	------	50,216	59,319	------	------	------	------

[1] Preliminary.
[2] Compiled from preliminary estimates reported by the International Association for Sugar Statistics.
[3] England and Wales only.
[4] 1-year only, 1925–26.
[5] Includes Switzerland, Bulgaria, Finland, and Australia in the 5-year average. Later years include also Irish Free State, Latvia, Lithuania, and Turkey, in which countries no sugar was produced prior to 1926–27.

Bureau of Agricultural Economics; official sources and International Institute of Agriculture.

TABLE 138.—*Beet sugar: Production, United States, 1913–33*

Year [1]	Factories operating	Acreage from which beets were harvested [2]	Beets paid for by factories	Beets sliced	Sugar produced (chiefly refined) [3]	Analysis of beets: Purity coefficient [4]	Analysis of beets: Percentage of sucrose [5]	Recovery of sucrose from beets [6]: Paid for	Recovery of sucrose from beets [6]: Sliced	Sugar produced per ton of beets: Paid for	Sugar produced per ton of beets: Sliced	Beet pulp produced: Molasses pulp	Beet pulp produced: Dry pulp other than molasses pulp
	Number	*1,000 acres*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Lb.*	*Lb.*	*1,000 short tons*	*1,000 short tons*
1913	71	580	5,886	5,659	733	83.22	15.78	12.45	12.96	249	259	------	------
1914	60	483	5,585	5,288	722	83.89	16.38	12.93	13.65	259	273	------	------
1915	67	611	6,511	6,150	874	84.38	16.49	13.42	14.21	268	284	------	------
1916	74	665	6,228	5,920	821	84.74	16.30	13.18	13.86	264	277	------	------
1917	91	665	5,980	5,626	765	83.89	16.28	12.79	13.60	256	272	------	------
1918	89	594	5,949	5,578	761	84.70	16.18	12.79	13.64	256	273	------	------
1919	89	692	6,421	5,888	726	82.84	14.48	11.31	12.34	226	247	------	------
1920	97	872	8,538	7,991	1,089	83.96	15.99	12.75	13.63	255	273	------	------
1921	92	815	7,782	7,414	1,020	83.09	15.77	13.11	13.76	262	275	------	------
1922	81	530	5,183	4,963	675	83.76	15.44	13.02	13.61	260	272	------	------
1923	89	657	7,006	6,585	881	83.43	15.30	12.57	13.37	251	267	------	------
1924	90	817	7,513	7,075	1,090	85.03	17.19	14.51	15.41	290	308	------	------
1925	88	653	7,423	6,993	913	82.84	14.86	12.30	13.06	246	261	------	------
1926	78	687	7,300	6,782	897	84.03	14.94	12.29	13.23	246	265	74	78
1927	83	732	7,821	7,443	1,093	84.60	16.11	13.98	14.68	280	294	89	76
1928	82	646	7,111	6,880	1,061	85.52	16.73	14.92	15.42	298	308	64	75
1929	78	694	7,366	7,117	1,018	84.46	15.64	13.74	14.22	275	284	111	48
1930	77	783	9,262	8,789	1,208	83.79	15.22	13.00	13.70	260	274	150	60
1931	65	714	7,906	7,659	1,156	84.54	16.18	14.29	14.75	286	295	99	75
1932	74	765	9,080	8,856	1,357	85.17	16.41	14.86	15.23	297	305	116	134
1933 [7]	81	986	11,102	------	1,629	------	16.47	14.67	------	293	------	132	139

[1] Year shown is that in which beets were grown. Sugar-making campaign extends into succeeding year.
[2] Including, in some years, a small acreage in Canada used by United States factories.
[3] Includes a small quantity not made from beets, and also that made at the Johnstown, Colo., molasses factory.
[4] Percentages of sucrose (pure sugar) in the total soluble solids of the beets.
[5] Based upon weight of beets sliced, except possibly in a very few factories.
[6] Sucrose actually extracted by factories, including that recovered from beet molasses.
[7] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 139.—*Sugar: Production in continental United States, Hawaii, Puerto Rico and the Philippine Islands, 1909–10 to 1933–34*

Year beginning July	Total cane and beet sugar (refined) [1]	Beet sugar (chiefly refined)	Cane sugar (chiefly raw): Continental United States [2]	Cane sugar: Puerto Rico	Cane sugar: Hawaii	Cane sugar: Philippine Islands	Cane sugar: Total
	Short tons	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*
1909–10	1,791,108	512,469	331,726	346,786	517,090	168,254	1,363,856
1910–11	1,955,539	510,172	355,040	349,840	566,821	268,878	1,540,579
1911–12	2,108,510	599,500	360,874	371,076	595,038	281,354	1,608,342
1912–13	2,057,179	692,556	162,573	398,004	546,524	345,077	1,452,178
1913–14	2,304,454	733,401	300,538	351,666	612,000	408,339	1,672,543
1914–15	2,282,021	722,054	246,620	346,490	646,000	421,192	1,660,302
1915–16	2,404,018	874,220	138,620	483,590	592,763	412,274	1,627,247
1916–17	2,590,239	820,657	310,900	503,081	644,663	425,266	1,883,910
1917–18	2,411,263	765,207	245,840	453,794	576,700	474,745	1,751,079
1918–19	2,399,820	760,950	284,400	406,002	600,312	453,346	1,744,060
1919–20	2,259,514	726,451	122,125	485,071	555,727	466,913	1,629,836
1920–21	2,761,304	1,089,021	176,114	489,818	521,579	589,437	1,776,948
1921–22	2,769,970	1,020,489	327,701	408,325	592,000	533,189	1,861,215
1922–23	2,260,865	675,000	295,735	379,172	537,000	475,325	1,687,232
1923–24	2,604,292	881,000	164,823	447,570	691,000	529,091	1,832,484
1924–25	3,252,954	1,090,000	88,483	660,411	769,000	779,510	2,297,404
1925–26	2,923,225	913,000	139,381	603,240	787,246	607,362	2,137,229
1926–27	3,019,707	897,000	47,166	629,134	811,333	766,902	2,254,535
1927–28	3,468,969	1,093,000	70,792	748,677	896,918	807,814	2,524,201
1928–29	3,463,853	1,061,000	132,053	586,761	899,101	933,954	2,551,869
1929–30	3,804,023	1,018,000	200,000	866,110	912,357	981,371	2,959,838
1930–31	3,950,386	1,208,000	184,000	783,163	988,612	958,032	2,913,807
1931–32	4,235,522	1,156,000	157,000	987,674	1,025,354	[3] 1,101,000	3,271,028
1932–33	4,536,399	1,357,000	223,000	834,308	1,035,528	[3] 1,283,000	3,375,836
1933–34 [4]	5,191,368	1,629,000	202,000	981,120	[5] 1,029,000	[5] 1,568,000	3,780,120

[1] Cane sugar, raw, converted to refined basis by multiplying by the following factors: United States, 0.932; Puerto Rico, 0.9393; Hawaii, 0.9358; Philippine Islands, 0.95.
[2] Figures for 1909–10 to 1923–24 include Louisiana and Texas; beginning 1924–25, Louisiana only.
[3] Unofficial estimate of centrifugal only. [4] Preliminary. [5] Unofficial.

Bureau of Agricultural Economics; production data compiled from the following sources: United States from the Department of Agriculture, except cane sugar, 1909–10 and 1910–11, which are from Willet & Gray; Hawaii from Hawaiian Sugar Planters' Association; Puerto Rico and Philippines from official sources of those islands.
Figures for earlier years appear in previous issues of the Yearbook.

TABLE 140.—*Cane sugar: Production of Hawaii, 1913–14 to 1932–33*

Year beginning October	Total acreage in cane	Cane used for sugar: Acreage harvested	Cane used for sugar: Average yield per acre [1]	Cane used for sugar: Production	Sugar produced: As made	Sugar produced: Equivalent refined [2]	Sugar made per short ton of cane	Recovery of equivalent refined sugar from cane ground [3]
	Acres	*Acres*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Pounds*	*Percent*
1913–14	----------	112,700	43.5	4,900,000	612,000	573,000	250	11.69
1914–15	239,800	113,200	45.8	5,185,000	646,000	605,000	249	11.67
1915–16	246,332	115,419	42.1	4,859,424	592,763	554,708	244	11.42
1916–17	245,100	123,900	42.1	5,220,000	644,663	603,276	247	11.56
1917–18	276,800	119,800	40.5	4,855,000	576,700	539,676	238	11.12
1918–19	239,900	119,700	39.6	4,744,000	600,312	561,772	253	11.84
1919–20	247,900	114,100	39.2	4,473,000	555,727	520,049	248	11.63
1920–21	236,500	113,100	41.2	4,657,000	521,579	488,094	224	10.48
1921–22	229,000	124,000	41.0	5,088,000	592,000	554,000	233	10.89
1922–23	235,000	114,000	40.0	4,560,000	537,000	503,000	235	11.03
1923–24	232,000	111,000	51.0	5,661,000	691,000	647,000	244	11.43
1924–25	241,000	122,000	51.6	6,297,000	769,000	720,000	244	11.43
1925–26	237,774	122,309	53.1	6,495,686	787,246	736,705	242	11.34
1926–27	234,809	124,542	56.1	6,992,082	811,333	759,245	232	10.86
1927–28	240,769	131,534	58.6	7,707,330	896,918	839,336	233	10.89
1928–29	239,858	129,131	57.7	7,447,494	899,101	841,379	241	11.30
1929–30	242,761	133,840	58.7	7,853,439	912,357	853,784	232	10.87
1930–31	251,533	137,037	61.9	8,485,183	988,612	925,143	233	10.90
1931–32	251,876	139,744	63.4	8,865,323	1,025,354	959,526	231	10.82
1932–33	254,563	144,959	59.1	8,566,781	1,035,548	969,066	242	11.31

[1] The growth of 18 to 22 months.
[2] 1 ton of sugar as made is assumed to be equivalent to 0.9358 ton of refined, as tentatively recommended by the joint committee on sugar statistics of the Departments of Commerce and Agriculture.
[3] Based upon tonnage of cane used.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board prior to 1926; since then data collected through the Hawaiian Sugar Planters' Association.

TABLE 141.—*Cane sugar: Production in Louisiana, 1911–33*

Year [1]	Factories operating	Cane used for sugar: Acreage	Cane used for sugar: Average yield per acre [2]	Cane used for sugar: Production	Sugar produced: As made	Sugar produced: Equivalent refined [3]	Recovery of equivalent refined sugar from cane ground [4]	Sugar made per ton of cane	Molasses made: Blackstrap	Molasses made: Total [5]	Molasses made: Per ton of sugar made	Molasses made: Per ton of cane used
	Number	*1,000 acres*	*Short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*Percent*	*Lb.*	*1,000 gallons*	*1,000 gallons*	*Gallons*	*Gallons*
1911	188	310	19.0	5,887	353	329	5.59	120	--------	35,063	99	6.0
1912	126	197	11.0	2,163	154	144	6.66	142	7,756	14,302	93	6.6
1913	153	248	17.0	4,214	293	273	6.48	139	15,723	24,046	82	5.7
1914	149	213	15.0	3,199	243	226	7.06	152	11,191	17,177	71	5.4
1915	136	183	11.0	2,018	138	129	6.39	137	6,331	12,743	92	6.3
1916	150	226	18.0	4,072	304	283	6.95	149	14,803	26,154	86	6.4
1917	140	238	16.0	3,813	244	227	5.95	128	13,354	30,727	126	8.1
1918	132	232	18.0	4,170	281	262	6.28	135	15,996	28,049	100	6.7
1919	121	179	10.5	1,883	121	113	6.00	129	6,468	12,991	107	6.9
1920	122	183	13.6	2,493	169	158	6.34	136	9,949	16,857	100	6.8
1921	124	226	18.5	4,181	324	302	7.22	155	17,613	25,423	78	6.1
1922	112	242	15.6	3,778	295	275	7.28	156	15,210	22,719	77	6.0
1923	105	215	11.1	2,387	162	151	6.33	136	8,169	15,719	97	6.6
1924	82	162	7.6	1,228	88	82	6.68	143	3,336	9,590	109	7.8
1925	91	189	14.0	2,644	139	130	4.92	105	12,171	17,783	128	6.7
1926	54	129	6.7	864	47	44	5.09	109	2,745	6,614	141	7.7
1927	46	72	13.4	962	71	66	6.86	148	2,582	6,624	93	6.9
1928	55	115	16.2	1,860	132	123	6.61	142	5,683	13,535	103	7.3
1929	65	155	18.8	2,918	200	186	6.37	137	14,418	19,619	98	6.7
1930	61	150	17.1	2,559	184	171	6.68	144	12,032	16,887	92	6.6
1931	59	148	15.1	2,232	157	146	6.54	141	9,477	14,645	93	6.6
1932	62	186	15.5	2,886	223	208	7.21	155	10,983	16,445	74	5.7
1933 [6]	--------	177	15.0	2,655	202	188	7.08	152	--------	15,240	75	5.7

[1] Sugar campaign, usually not ended before February following season of growth of cane.
[2] The growth of about 9 months.
[3] 1 ton of sugar as made is assumed to be equivalent to 0.932 ton of refined as tentatively recommended by the joint committee on sugar statistics of the Departments of Commerce and Agriculture.
[4] Based upon tonnage of cane used.
[5] Figures for molasses, 1911–14, are as reported by the Louisiana Sugar Planters' Association; figures for later years as reported by Division of Crop and Livestock Estimates. For sirup production, see table 149.
[6] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 142.—*Sugar: Production, trade, and supply available for consumption in continental United States, 1909–10 to 1932–33*

IN TERMS OF RAW SUGAR

Year beginning July	Production [1]	Brought in from insular possessions [2]	Imports as sugar [3]	Domestic exports as sugar [4]	Exports in other forms [5]	Apparently available for consumption [6]	
						Total	Per capita
	Short tons	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Pounds*
1909–10	882, 630	927, 752	1, 934, 754	72, 382	24, 351	3, 648, 403	79. 7
1910–11	903, 475	943, 701	1, 845, 279	36, 597	15, 966	3, 639, 891	78. 3
1911–12	1, 005, 337	1, 187, 663	1, 832, 424	50, 380	15, 160	3, 959, 883	83. 9
1912–13	907, 070	1, 026, 972	2, 266, 426	30, 963	19, 217	4, 150, 288	86. 6
1913–14	1, 088, 944	936, 376	2, 463, 252	37, 190	11, 892	4, 439, 489	91. 3
1914–15	1, 022, 828	1, 098, 314	2, 529, 963	302, 641	13, 585	4, 334, 878	87. 9
1915–16	1, 078, 407	1, 102, 057	2, 689, 067	882, 864	12, 213	3, 974, 453	79. 4
1916–17	1, 193, 107	1, 203, 938	2, 527, 984	676, 752	29, 211	4, 219, 066	83. 2
1917–18	1, 068, 437	975, 684	2, 344, 816	305, 429	46, 131	4, 037, 377	78. 5
1918–19	1, 102, 421	1, 073, 944	2, 799, 962	568, 566	36, 747	4, 371, 013	83. 8
1919–20	903, 060	975, 735	3, 812, 955	776, 502	98, 386	4, 816, 862	91. 1
1920–21	1, 346, 811	1, 076, 342	3, 228, 279	319, 589	89, 491	5, 242, 352	97. 6
1921–22	1, 424, 726	1, 340, 867	3, 940, 777	1, 085, 349	31, 397	5, 589, 624	102. 5
1922–23	1, 021, 360	1, 235, 049	4, 068, 205	412, 196	12, 568	5, 899, 849	106. 6
1923–24	1, 111, 898	1, 274, 870	3, 436, 955	152, 883	24, 617	5, 646, 223	100. 5
1924–25	1, 260, 000	1, 645, 319	3, 931, 282	273, 470	22, 436	6, 540, 695	114. 7
1925–26	1, 121, 000	1, 981, 482	3, 895, 947	325, 804	24, 998	6, 647, 627	114. 9
1926–27	1, 011, 000	1, 689, 347	3, 968, 997	124, 555	26, 303	6, 518, 486	111. 1
1927–28	1, 246, 000	2, 051, 659	3, 415, 830	115, 566	29, 833	6, 568, 090	110. 4
1928–29	1, 273, 000	1, 974, 899	4, 115, 601	139, 324	31, 894	7, 192, 282	119. 2
1929–30	1, 294, 000	2, 377, 787	2, 823, 173	87, 092	43, 320	6, 364, 548	104. 0
1930–31	1, 482, 000	2, 603, 735	2, 416, 398	77, 131	33, 026	6, 391, 976	103. 4
1931–32	1, 400, 000	2, 813, 113	2, 321, 028	59, 595	28, 522	6, 446, 024	103. 5
1932–33	1, 682, 000	3, 076, 472	1, 710, 913	44, 465	19, 269	6, 405, 651	102. 3

IN TERMS OF REFINED SUGAR [7]

Year beginning July	Production	Brought in from insular possessions	Imports as sugar	Domestic exports as sugar	Exports in other forms	Total	Per capita
1921–22	1, 325, 906	1, 260, 894	3, 686, 397	1, 009, 377	29, 182	5, 234, 638	96. 0
1922–23	950, 625	1, 161, 351	3, 805, 745	383, 439	11, 682	5, 522, 600	99. 8
1923–24	1, 034, 615	1, 198, 777	3, 214, 883	142, 217	22, 943	5, 283, 115	94. 0
1924–25	1, 172, 000	1, 547, 587	3, 674, 563	254, 391	20, 911	6, 118, 848	107. 3
1925–26	1, 043, 000	1, 859, 332	3, 634, 323	303, 073	23, 298	6, 210, 284	107. 4
1926–27	941, 000	1, 588, 981	3, 714, 054	115, 865	24, 514	6, 103, 656	104. 0
1927–28	1, 159, 000	1, 930, 732	3, 196, 443	107, 704	27, 805	6, 150, 666	103. 3
1928–29	1, 184, 000	1, 858, 331	3, 851, 311	129, 846	29, 726	6, 734, 070	111. 6
1929–30	1, 204, 000	2, 239, 140	2, 641, 709	81, 167	40, 375	5, 963, 307	97. 5
1930–31	1, 379, 000	2, 451, 611	2, 261, 187	71, 884	30, 781	5, 989, 133	96. 9
1931–32	1, 302, 000	2, 648, 129	2, 171, 882	55, 541	26, 582	6, 039, 888	97. 0
1932–33	1, 565, 000	2, 899, 241	1, 600, 963	41, 439	17, 965	6, 005, 806	95. 9

[1] Beet and cane sugar only.
[2] Duty free, from Hawaii, Puerto Rico, and the Philippine Islands (Virgin Islands included in 1917 and subsequently).
[3] No account taken of sugar imported in other forms. Imports from the Philippine Islands excluded, reexports deducted.
[4] Shipments to Hawaii and Puerto Rico included. Direct exports to foreign countries from Hawaii and Puerto Rico excluded.
[5] Sugar used in the manufacture of other commodities for export on which drawback was paid.
[6] No account taken of stocks at the beginning or end of year.
[7] Raw sugar converted to refined by multiplying by the following factors: Cuba and Hawaii, 0.9358; Puerto Rico, 0.9393; Philippines, 0.95; all others (Santo Domingo, British West Indies, Louisiana, etc.), 0.932. Use reciprocal of above factors to reduce refined sugar to raw.

Bureau of Agricultural Economics; trade figures from the Bureau of Foreign and Domestic Commerce.

TABLE 143.—*Sugar, raw, cane and beet: Production, world and selected countries, 1909–10 to 1933–34*

Crop year [1]	Estimated world total	Estimated world total cane sugar	Estimated world total beet sugar	Selected countries							
				United States [2]	Cuba	India [3]	Java [4]	Germany [5]	Czechoslovakia	Poland [6]	France [7]
	1,000 short tons	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*
1909–10	16,828	9,670	7,158	883	2,021	2,481	1,411	2,147	---------	-------	861
1910–11	18,834	9,870	8,964	903	1,661	2,587	1,617	2,770	---------	-------	763
1911–12	17,908	10,622	7,286	1,005	2,124	2,745	1,550	1,552	---------	-------	546
1912–13	20,542	10,896	9,646	907	2,720	2,862	1,616	2,902	---------	-------	1,029
1913–14	21,154	11,640	9,514	1,089	2,909	2,573	1,549	2,886	---------	-------	841
1914–15	20,875	11,952	8,923	1,023	2,922	2,736	1,454	2,721	---------	376	355
1915–16	18,885	12,278	6,607	1,078	3,398	2,949	1,797	1,678	---------	239	159
1916–17	18,592	13,255	5,337	1,193	3,422	3,093	2,009	1,721	---------	293	217
1917–18	20,293	14,790	5,503	1,068	3,890	3,839	1,960	1,726	---------	263	235
1918–19	18,604	14,076	4,528	1,102	4,491	2,752	1,473	1,297	[8] 714	249	129
1919–20	17,989	14,338	3,651	903	4,184	3,404	1,681	774	553	106	182
1920–21	19,546	14,225	5,321	1,347	4,406	2,825	1,853	1,195	797	195	358
1921–22	20,578	15,095	5,483	1,425	4,517	2,928	1,994	1,434	731	170	326
1922–23	20,860	15,127	5,733	1,022	4,083	3,410	1,981	1,604	811	335	522
1923–24	22,810	16,306	6,504	1,112	4,606	3,715	2,201	1,263	1,115	423	524
1924–25	26,670	17,712	8,958	1,260	5,812	2,852	2,535	1,724	1,574	540	919
1925–26	27,989	18,813	9,176	1,120	5,524	3,334	2,175	1,763	1,662	638	831
1926–27	26,624	18,125	8,499	1,011	5,050	3,659	2,639	1,834	1,153	634	786
1927–28	28,515	18,671	9,844	1,246	4,527	3,603	3,238	1,846	1,383	658	956
1928–29	30,655	20,319	10,336	1,273	5,775	3,035	3,198	2,054	1,165	824	999
1929–30	30,607	20,459	10,148	1,294	5,231	3,092	3,245	2,188	1,142	1,010	1,011
1930–31	31,803	19,107	12,696	1,482	3,497	3,604	3,095	2,808	1,258	856	1,298
1931–32	29,500	19,964	9,536	1,400	2,915	4,446	2,821	1,758	903	544	946
1932–33 [9]	26,925	18,404	8,521	1,682	2,234	5,209	1,530	1,200	699	460	1,121
1933–34 [9]	27,707	18,308	9,399	1,953	2,593	5,236	[10] 551	1,497	563	390	1,000

[1] Figures are for the crop years 1909–10 to 1933–34 for the countries in which the sugar production season begins in the fall months and is completed during the following calendar year, except in certain cane-sugar-producing countries where the season begins in May or June and is completed in the same calendar year. Production in these countries is for the calendar years 1909–33.

[2] Production of cane and beet sugar in terms of raw sugar.

[3] The figures quoted for India are for the production of gur, a low grade of sugar polarizing between 50° and 60°. Practically the entire crop is consumed within the country.

[4] All grades of sugar reduced to terms of head sugar, a grade of sugar which contains at least 96.5 percent sucrose. Figures for Java are for the calendar years 1910–34.

[5] Figures for 1909–10 to 1917–18 are for pre-war boundaries.

[6] Figures are incomplete through 1920–21; 1914–15 includes Prussian Poland only; 1915–16 to 1919–20 include Prussian Poland and Congress Poland; 1920–21 includes Prussian Poland, Congress Poland, and Galicia.

[7] Figures for 1909–10 to 1918–19 refer to pre-war boundaries; 1914–15 to 1918–19 are exclusively of invaded territory.

[8] Bohemia, Moravia, and Silesia only.

[9] Preliminary.

[10] Unofficial estimate.

Bureau of Agricultural Economics. Estimated world total sugar production for the period 1895–96 to 1908–9 in Agriculture Yearbook, 1924, p. 808.

TABLE 144.—*Sugar: Production in specified countries, average 1921–22 to 1925–26, annual 1929–30 to 1933–34*

BEET SUGAR IN TERMS OF RAW SUGAR

Country	Average, 1921–22 to 1925–26	1929–30	1930–31	1931–32	1932–33 [1]	1933–34 [1]
NORTH AMERICA	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*
Canada	31,908	39,432	53,764	60,875	75,008	69,000
United States	984,600	1,094,000	1,298,600	1,243,000	1,459,000	1,751,000
Total	1,016,508	1,133,432	1,352,364	1,303,875	1,534,008	1,820,000
EUROPE						
England and Wales	24,385	362,757	526,062	295,038	410,131	490,000
Scotland	(2)	713	1,758	679	844	
Irish Free State	(2)	25,557	28,000	6,471	28,692	28,170
Sweden	175,564	134,203	205,760	158,304	259,425	319,100
Denmark	142,726	140,874	175,656	127,492	199,785	249,000
Netherlands	324,273	286,170	316,200	181,673	253,570	292,700
Belgium	346,094	273,426	306,894	221,113	283,850	249,700
France	624,498	1,010,848	1,298,371	946,355	1,121,000	1,000,000
Spain	199,414	246,426	318,449	397,690	256,805	270,000
Italy	308,261	496,135	474,904	418,121	355,522	430,000
Switzerland	6,698	6,760	6,300	6,700	7,600	8,200
Germany	1,557,556	2,187,795	2,808,076	1,757,960	1,199,793	1,497,137
Austria	53,192	132,708	165,642	179,179	181,800	204,000
Czechoslovakia	1,178,534	1,141,638	1,257,995	903,142	698,967	563,086
Hungary	139,801	272,083	258,265	138,064	113,989	120,000
Yugoslavia	63,482	143,769	112,067	95,132	93,452	75,382
Bulgaria	22,044	40,800	60,205	28,126	29,510	37,150
Rumania	76,698	118,150	168,220	59,180	55,000	132,000
Poland	421,338	1,009,597	855,949	543,977	459,575	390,000
Latvia	(2)	3,888	8,322	13,230	30,000	39,000
Lithuania	(2)	(2)	(2)	7,231	15,000	17,637
Finland	1,407	2,790	4,079	4,152	6,368	7,050
Russia	474,700	907,000	1,914,400	1,681,000	860,000	1,070,000
Turkey [3]	(2)	38,000	38,400	25,108	30,239	51,975
Total	6,140,665	8,982,087	11,309,974	8,195,117	6,950,917	7,541,287
ASIA						
Japan:						
Hokkaido	9,995	28,064	26,583	29,598	29,601	31,296
Chosen	625	733	1,109	1,822	(4)	(4)
Total	10,620	28,797	27,692	31,420		
OCEANIA						
Australia	3,021	3,186	5,706	5,878	[5] 6,614	[5] 6,614
Total world beet sugar [6]	7,170,814	10,147,502	12,695,736	9,536,290	8,521,140	9,399,197

CANE SUGAR (RAW)

Country	Average, 1921–22 to 1925–26	1929–30	1930–31	1931–32	1932–33 [1]	1933–34 [1]
NORTH AMERICA, CENTRAL AMERICA, AND WEST INDIES						
United States	203,224	199,609	183,693	156,617	222,760	202,000
Hawaii	675,249	912,357	988,612	1,025,354	1,035,528	[5] 1,029,280
Puerto Rico	499,751	866,110	783,163	987,674	834,308	981,120
Virgin Islands	5,535	[5] 6,424	[5] 2,000	[5] 4,577	[5] 4,738	[5] 7,840
Central America:						
Guatemala	21,733	[5] 37,408	[5] 44,628	[5] 40,683	[5] 34,552	[5] 35,840
Nicaragua	14,457	16,000				
Salvador	21,200	[5] 27,600	51,210	33,289		
Mexico	179,150	[5] 235,000	[5] 287,285	[5] 256,020	[5] 231,016	[5] 209,437
West Indies (British):						
Antigua	13,340	20,459	5,574	21,468	[5] 27,076	[5] 22,400
Barbados	56,200	56,498	66,690	92,774	[5] 107,544	[5] 112,000
Jamaica	39,883	75,313	56,174	65,520	[5] 62,008	[5] 73,920
St. Christopher	13,985	20,922	13,464	22,365	[5] 27,065	[5] 24,640
Trinidad	66,483	89,430	110,402	109,310	[5] 135,255	[5] 140,000
Cuba	4,908,638	5,231,490	3,496,848	2,915,208	2,234,488	2,593,314
Dominican Republic	281,846	401,576	394,609	493,325	[5] 436,266	[5] 420,000
Haiti	10,158	[5] 21,176	[5] 21,068	[5] 23,461	[5] 28,338	[5] 29,120
West Indies (French):						
Guadeloupe	32,674	30,144	20,805	[5] 39,199	[5] 40,473	[5] 41,440
Martinique	33,573	[5] 42,038	[5] 42,029	[5] 50,579	[5] 52,455	[5] 52,640
Total North American and Central American countries and West Indies reporting all years	7,041,422	8,245,954	6,517,044	6,304,134	5,513,870	5,974,991

See footnotes at end of table.

41527°—34——31

TABLE 144.—*Sugar: Production in specified countries, average 1921–22 to 1925–26, annual 1929–30 to 1933–34*—Continued

CANE SUGAR (RAW)—Continued

Country	Average, 1921–22 to 1925–26	1929–30	1930–31	1931–32	1932–33 [1]	1933–34 [1]
EUROPE AND ASIA	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*
Spain	8,738	[5] 15,189	[5] 25,008	[5] 28,373	[5] 21,683	[5] 23,148
India [7]	3,247,800	3,092,000	3,604,000	4,446,000	5,209,000	5,236,000
Taiwan	471,748	893,396	878,841	1,090,249	603,457	676,304
Japan	91,569	106,986	85,676	122,907	88,668	159,780
Java [8]	2,113,004	3,245,288	3,095,270	2,820,721	1,530,194	551,150
Philippine Islands	584,895	981,371	958,032	[9] 1,100,703	[9] 1,282,782	[9] 1,568,000
Total European and Asiatic countries reporting all years [10]	5,932,859	7,352,859	7,688,795	8,508,250	7,453,002	6,646,382
SOUTH AMERICA						
Argentina	288,008	375,310	420,854	381,914	383,854	358,248
Brazil	904,456	1,124,679	1,032,787	1,137,054	1,080,000	[5] 1,120,000
British Guiana	112,297	143,096	141,280	166,470	[5] 151,200	[5] 145,600
Dutch Guiana	12,469	14,069	20,744	[5] 22,566	[5] 21,812	[5] 20,160
Ecuador	17,603	21,008	23,208	[5] 27,214	[5] 15,970	[5] 22,400
Peru	354,567	465,563	470,000	450,644	[5] 464,385	[5] 468,478
Venezuela	21,423	[5] 25,000	[5] 21,999	[5] 22,609	[5] 26,123	[5] 22,400
Total	1,710,823	2,168,725	2,130,872	2,208,471	2,143,344	2,157,286
AFRICA						
Egypt	100,264	118,377	134,260	162,472	187,704	[5] 128,800
Mauritius	243,069	262,386	243,564	180,788	272,511	[5] 264,552
Union of South Africa	182,420	298,635	393,205	325,899	338,868	[5] 388,000
Portuguese East Africa	53,219	87,937	[5] 85,421	[5] 79,098	[5] 106,000	[5] 95,000
Reunion	52,015	56,243	55,572	[5] 47,312	[5] 59,868	[5] 66,138
Madagascar	2,168	5,534	5,181	7,496	9,370	----------
Total African countries reporting all years	630,987	823,578	912,022	795,569	964,951	942,490
OCEANIA						
Australia	411,638	602,654	599,899	676,183	[5] 602,585	[5] 680,960
Fiji	71,984	98,236	103,190	89,300	153,400	[5] 137,750
Total	483,622	700,890	703,089	765,483	755,985	818,710
Total cane sugar producing countries reporting all years	15,799,713	19,292,006	17,951,822	18,581,907	16,831,152	16,539,859
Estimated world total cane sugar [6]	16,610,000	20,459,000	19,107,000	19,964,000	18,404,000	18,308,000
Total world cane and beet sugar production in countries reporting all years	22,970,527	29,439,508	30,647,558	28,118,197	25,352,292	25,939,056
Estimated world total cane and beet sugar [6]	23,781,000	30,607,000	31,803,000	29,500,000	26,925,000	27,707,000

[1] Preliminary.
[2] No sugar produced.
[3] Includes Turkey in Asia.
[4] The manufacture of beet sugar by the Japan Sugar Co. in Chosen has been discontinued, according to trade reports.
[5] Unofficial estimate.
[6] Exclusive of production in minor producing countries for which no statistics are available.
[7] The figures quoted for India are for the production of gur, a low grade of sugar polarizing between 50° and 60°. Practically the entire crop is consumed within the country.
[8] All grades of sugar reduced to terms of head sugar, a grade of sugar which contains at least 96.5 percent sucrose. Figures for Java are for the calendar years 1922 to 1934.
[9] Unofficial estimate of production of centrifugal sugar, which usually accounts for about 90 percent of the total sugar production.
[10] Production in the Philippine Islands is not included in this total as the figures quoted for the last 3 years are not comparable with earlier years.

Bureau of Agricultural Economics; official sources, International Institute of Agriculture and Sugar Associations estimates except as otherwise stated.

Figures are for the crop years 1921–22 to 1933–34 for the contries in which the sugar-harvesting season begins in the fall months and is completed during the following calendar year, except in certain cane-sugar producing countries in the Southern Hemisphere, such as Argentina, Australia, Mauritius, Union of South Africa, etc., where the season begins in May or June and is completed in the same calendar year. Production in these countries is for the calendar years 1921 to 1933.

TABLE 145.—*Cane sugar, raw (96° centrifugal): Average wholesale price per pound, New York, 1924–33* [1]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average [2]
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924	6.7	7.2	6.9	6.4	5.6	5.1	5.1	5.4	6.0	6.0	5.8	5.3	6.0
1925	4.6	4.6	4.7	4.5	4.3	4.4	4.3	4.4	4.3	3.9	4.0	4.1	4.3
1926	4.2	4.2	4.0	4.1	4.2	4.1	4.2	4.2	4.4	4.6	4.7	5.1	4.3
1927	5.1	4.9	4.8	4.8	4.8	4.6	4.5	4.5	4.8	4.7	4.7	4.6	4.7
1928	4.5	4.3	4.5	4.5	4.5	4.3	4.2	4.1	4.2	3.9	3.9	3.9	4.2
1929	3.8	3.7	3.7	3.7	3.6	3.5	3.8	3.8	4.0	4.0	3.8	3.8	3.8
1930	3.7	3.7	3.6	3.5	3.2	3.2	3.3	3.2	3.1	3.3	3.4	3.3	3.4
1931	3.4	3.3	3.3	3.3	3.2	3.3	3.5	3.5	3.4	3.4	3.4	3.2	3.3
1932	3.1	2.9	2.8	2.6	2.6	2.8	3.0	3.2	3.1	3.2	3.0	2.9	2.9
1933	2.7	2.8	3.0	3.1	3.3	3.4	3.5	3.5	3.6	3.3	3.2	3.2	3.2

[1] Quotations are on basis of duty paid.
[2] Derived from the figures upon which the monthly averages are based.

Bureau of Agricultural Economics; compiled from Bureau of Labor Statistics reports.
Data for 1890–1923 are available in 1924 Yearbook, p. 810, table 388.

TABLE 146.—*Sugar, granulated: Average retail price per pound, United States, 1924–33* [1]

Year	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924	10.2	10.3	10.4	9.9	9.2	8.3	8.4	8.2	8.6	8.8	8.8	8.8	9.2
1925	8.1	7.7	7.7	7.5	7.2	7.2	7.1	7.0	7.0	6.8	6.6	6.7	7.2
1926	6.7	6.7	6.7	6.6	6.7	6.9	6.9	7.0	7.0	7.1	7.1	7.3	6.9
1927	7.5	7.5	7.4	7.3	7.3	7.3	7.4	7.3	7.2	7.2	7.2	7.1	7.3
1928	7.1	7.1	7.1	7.1	7.2	7.3	7.3	7.1	7.0	6.9	6.8	6.7	7.1
1929	6.7	6.6	6.5	6.4	6.4	6.4	6.4	6.6	6.7	6.7	6.7	6.6	6.6
1930	6.6	6.5	6.4	6.3	6.3	6.1	6.1	6.1	5.9	5.8	5.9	5.9	6.2
1931	5.9	5.9	5.8	5.7	5.6	5.6	5.6	5.7	5.7	5.6	5.6	5.5	5.7
1932	5.4	5.3	5.2	5.1	4.9	4.9	5.0	5.1	5.1	5.1	5.1	5.1	5.1
1933	5.1	5.0	5.0	5.1	5.3	5.4	5.5	[1] 5.6	5.7	5.7	5.6	5.5	5.4

[1] Data are averages of prices as reported by retail dealers as of the 15th of month in 51 of the larger cities of the United States. Beginning August 1933, prices are reported twice during the month; those shown are nearest the 15th.

Bureau of Agricultural Economics; compiled from Bureau of Labor Statistics retail prices.
Data for 1913–23 available in 1930 Yearbook, p. 704, table 162.

TABLE 147.—*Sorgo sirup: Acreage, yield, production, and price per gallon received by producers Dec. 1, by States, averages, and annual 1932 and 1933*

State	Acreage harvested for sirup			Yield per acre			Production			Price Dec. 1	
	Average, 1926–30	1932	1933 [1]	Average, 1921–30	1932	1933 [1]	Average, 1926–30	1932	1933 [1]	1932	1933
	1,000 acres	*1,000 acres*	*1,000 acres*	*Gal.*	*Gal.*	*Gal.*	*1,000 gal.*	*1,000 gal.*	*1,000 gal.*	*Cents*	*Cents*
Indiana	2	2	2	64	75	65	133	150	130	49	60
Illinois	2	2	2	67	72	58	140	144	116	50	65
Iowa	3	2	2	77	85	75	232	170	150	60	60
Missouri	12	10	12	60	53	47	673	530	564	47	55
Kansas	2	4	4	57	45	43	105	180	172	50	50
Virginia	2	4	5	64	50	63	153	200	315	55	65
North Carolina	19	28	24	68	60	75	1,304	1,680	1,800	48	55
South Carolina	7	10	8	55	54	52	363	540	416	45	50
Georgia	13	18	17	66	64	64	875	1,152	1,088	38	48
Kentucky	12	13	14	60	56	62	721	728	868	42	49
Tennessee	21	24	21	61	52	60	1,282	1,248	1,260	38	48
Alabama	24	57	48	65	69	68	1,641	3,933	3,264	32	45
Mississippi	16	26	23	76	74	75	1,257	1,924	1,725	28	38
Arkansas	13	15	17	56	52	56	702	780	952	37	49
Oklahoma	5	5	3	49	46	55	268	230	165	36	46
Texas	19	30	38	56	54	52	1,182	1,620	1,976	38	46
United States	170	250	240	62.9	60.8	62.3	11,032	15,209	14,961	37.8	47.9

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 148.—*Sugar: International trade, average 1925–29, annual 1928–32*

Country	Calendar year											
	Average, 1925–29		1928		1929		1930		1931		1932 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*
Cuba	5, 032, 658	525	4, 389, 253	135	5, 466, 719	79	3, 598, 333	37	3, 002, 821	20	---	---
Dutch East Indies	2, 380, 762	3, 634	2, 827, 302	3, 772	2, 680, 686	3, 825	2, 468, 948	3, 652	1, 739, 182	2, 985	[2] 1, 668, 463	[2] 141
Czechoslovakia	792, 566	628	819, 545	77	595, 686	109	571, 962	3, 331	498, 864	235	434, 603	20
Philippine Islands	612, 260	2, 398	628, 242	4, 887	767, 055	2, 138	820, 089	1, 046	829, 957	1, 601	1, 120, 563	777
Dominican Republic	353, 915	196	383, 664	17	355, 574	7	386, 621	6	353, 239	4	484, 731	4
Peru	332, 668	106	337, 270	24	400, 553	107	373, 442	124	363, 990	200	358, 393	---
Poland	253, 202	2, 291	204, 675	38	328, 309	11, 087	435, 378	11, 977	379, 977	8, 224	204, 442	8, 286
Mauritius	242, 199	[3] 3	241, 695	[3] 3	306, 259	[3] 2	204, 520	[3] 9	197, 100	[3] 137	218, 129	---
Australia [3]	179, 533	911	232, 667	33	216, 394	27	211, 034	1	305, 667	6	---	---
Germany	174, 357	92, 758	85, 161	138, 113	242, 455	30, 826	328, 458	18, 876	390, 677	14, 411	89, 606	27, 507
Belgium	152, 164	77, 890	109, 906	86, 349	127, 013	88, 799	79, 289	74, 797	57, 802	54, 984	81, 671	74, 702
British Guiana	113, 607	447	128, 449	536	112, 503	361	128, 287	192	133, 668	115	153, 527	66
Russia	[3] 105, 024	57, 858	[3] 150, 347	2	[3] 139, 720	40, 086	[3] 112, 291	342, 155	352, 503	78	83, 908	45, 753
Fiji	92, 836	171	135, 165	172	80, 948	290	101, 896	193	76, 089	190	147, 058	195
Hungary	90, 488	417	78, 013	594	133, 851	862	117, 745	732	57, 756	135	19, 158	56
Union of South Africa	82, 951	10, 307	90, 389	17, 977	122, 740	19, 867	183, 482	10, 126	183, 127	2, 956	166, 813	2, 824
Trinidad and Tobago	72, 520	1, 564	83, 006	2, 056	91, 284	1, 607	77, 435	1, 010	95, 336	46	94, 936	40
Barbados	61, 524	517	70, 242	628	73, 418	473	56, 562	489	38, 553	---	---	---
Reunion	54, 035	26	39, 516	131	[3] 41, 447	[3] 0	[3] 46, 933	0	[3] 57, 190	[3] 1	---	---
Jamaica	49, 676	1, 081	54, 562	1, 102	41, 866	1, 373	56, 419	555	49, 609	46	---	---
Mozambique	37, 906	93	40, 060	377	55, 299	14	76, 686	39	83, 310	67	70, 202	70
Brazil	25, 076	20	33, 116	3	16, 400	0	93, 097	4	12, 240	1	44, 602	9
Argentina	23, 426	17, 264	37, 775	1, 246	10, 034	1, 979	4, 699	5, 083	4, 455	3, 954	1, 553	578
Madagascar	3, 897	3, 768	4, 659	3, 960	5, 500	4, 237	4, 784	3, 619	5, 751	3, 912	7, 419	3, 104
Total	11, 319, 250	274, 873	11, 204, 679	262, 232	12, 411, 713	208, 155	10, 538, 390	478, 053	9, 268, 863	94, 308	5, 449, 777	164, 132
PRINCIPAL IMPORTING COUNTRIES												
United States [5]	167, 360	4, 428, 566	122, 587	3, 868, 804	102, 639	4, 888, 389	77, 814	3, 495, 113	52, 577	3, 176, 259	49, 004	2, 971, 271
United Kingdom	105, 263	2, 135, 293	83, 825	2, 150, 189	186, 766	2, 351, 404	312, 589	2, 141, 092	119, 068	2, 048, 880	341, 419	2, 667, 325
British India	40, 084	904, 568	44, 761	930, 251	42, 962	1, 034, 939	48, 487	1, 014, 130	[4] 29, 308	[4] 698, 310	[4] 436	[4] 469, 024
China	2, 072	823, 225	1, 542	916, 132	665	959, 428	252	812, 404	220	716, 628	145	389, 726
Canada	89, 914	524, 446	27, 555	477, 711	20, 799	475, 490	13, 906	472, 711	8, 771	475, 765	6, 224	434, 178
France	251, 691	460, 753	282, 929	488, 067	331, 457	562, 430	308, 762	453, 063	297, 863	372, 806	311, 972	451, 568
Japan	204, 103	414, 134	256, 052	423, 395	217, 615	251, 020	244, 568	269, 693	176, 146	218, 611	97, 543	44, 400
Netherlands	284, 204	316, 951	227, 232	307, 109	122, 542	188, 931	106, 270	198, 641	36, 366	125, 990	30, 506	159, 627

Switzerland	74	148, 736	85	158, 532	97	163, 479	188	166, 365	523	176, 465	724	181, 640
Chile	133	136, 205	200	149, 113	159	168, 181	147	126, 390	80	114, 357	----------	106, 534
British Malaya	31, 068	125, 180	32, 135	125, 176	21, 297	128, 229	15, 585	126, 473	12, 954	112, 358	17, 987	109, 210
Morocco	0	121, 576	0	128, 314	0	146, 913	0	142, 492	0	152, 888	----------	----------
Austria	663	114, 983	617	118, 737	685	123, 377	558	89, 632	147	44, 282	293	21, 013
Sweden	18	110, 608	18	103, 528	55	158, 566	90	94, 037	74	93, 104	112	97, 676
Irish Free State	0	92, 080	0	90, 115	0	88, 518	0	92, 108	0	91, 120	----------	96, 346
Finland	0	87, 238	0	101, 485	0	101, 349	0	134, 417	0	77, 578	0	64, 109
Portugal	102	86, 255	105	94, 066	80	78, 784	37	71, 166	[3] 4	78, 141	----------	68, 566
Persia [6]	99	82, 505	9	84, 399	8	100, 175	3	89, 188	0	47, 973	----------	----------
New Zealand	739	81, 102	867	89, 497	1, 062	78, 665	1, 222	96, 579	997	85, 056	1, 155	86, 108
Norway	0	79, 493	0	80, 109	0	83, 705	0	93, 112	0	89, 839	0	81, 381
Egypt	9, 341	79, 282	5, 704	77, 881	7, 256	107, 974	5, 146	143, 326	4, 087	4, 578	1, 043	885
Italy	4, 778	66, 744	4	118, 438	5	14, 622	14, 361	20, 700	11, 081	14, 998	12, 241	13, 408
Greece	[7] 12	64, 751	23	67, 075	7	69, 766	----------	70, 499	----------	68, 680	----------	66, 215
Algeria	151	63, 315	451	70, 572	68	75, 502	113	81, 266	106	80, 869	----------	78, 913
Ceylon	1	61, 046	0	69, 030	1	72, 242	0	80, 102	0	79, 750	----------	57, 670
Siam [8]	1, 648	46, 472	243	44, 164	39	49, 447	2	57, 212	10	43, 114	12	43, 938
Uruguay	0	43, 221	0	37, 338	0	49, 332	0	48, 854	----------	[3] 51, 801	----------	----------
Latvia	20	41, 655	[3] 0	46, 559	[3] 70	45, 689	0	56, 266	0	36, 801	275	32, 307
Denmark	3, 148	29, 841	605	43, 603	626	42, 862	183	48, 991	192	49, 850	234	48, 373
Tunis	0	29, 742	0	31, 841	0	37, 478	0	41, 334	0	36, 810	----------	38, 893
Lithuania	25	25, 731	26	27, 501	95	29, 796	250	34, 418	269	28, 217	----------	16, 846
Anglo-Egyptian Sudan	0	23, 812	0	26, 766	0	32, 976	0	34, 442	0	26, 298	0	13, 922
Formosa	13, 346	18, 109	8, 744	8, 374	2, 967	1, 642	408	171	16, 488	2	----------	----------
Yugoslavia	4, 654	7, 320	0	16, 108	14, 655	3, 102	8, 858	2, 072	0	1, 608	0	1, 244
Gold Coast	0	5, 584	0	6, 704	0	5, 994	0	5, 791	0	4, 239	----------	----------
Total	1, 214, 711	11, 880, 522	1, 096, 319	11, 576, 683	1, 074, 677	12, 770, 396	1, 159, 799	10, 904, 250	767, 331	9, 524, 025	871, 325	8, 912, 316

[1] Preliminary.
[2] Java and Madura only.
[3] International Yearbook of Agricultural Statistics.
[4] Sea trade only since September 1931.
[5] Includes imports from Virgin Islands of the United States and Philippine Islands, but does not include shipments from Hawaii and Puerto Rico.
[6] Year ended Mar. 20 of following year except 1931, which is year ended June 21 of following year.
[7] 2-year average.
[8] Year ended Mar. 31 of following year.

Bureau of Agricultural Economics; official sources except where otherwise noted.

The following kinds and grades have been included under the head of sugar: Brown, white, candied, caramel, chanaca (Peru), crystal cube, maple, muscovado, panela. The following have been excluded: Candy (meaning confectionery), confectionery, glucose, grape sugar, jaggery, molasses, and sirups.

TABLE 149.—*Sugarcane sirup: Acreage, yield, production, and price per gallon received by producers Dec. 1, by States, averages, and annual 1932 and 1933*

State	Acreage harvested for sirup			Yield per acre			Production			Price Dec. 1	
	Average, 1926–30	1932	1933 [1]	Average, 1921–30	1932	1933 [1]	Average, 1926–30	1932	1933 [1]	1932	1933
	1,000 acres	*1,000 acres*	*1,000 acres*	*Gal.*	*Gal.*	*Gal.*	*1,000 gal.*	*1,000 gal.*	*1,000 gal.*	*Cents*	*Cents*
South Carolina	5	6	6	90	82	105	551	492	630	56	65
Georgia	28	31	33	143	150	125	4, 275	4, 650	4, 125	39	50
Florida	9	10	10	160	160	150	1, 603	1, 600	1, 500	36	45
Alabama	19	22	28	118	120	115	2, 291	2, 640	3, 220	42	55
Mississippi	14	17	19	129	166	167	2, 152	2, 822	3, 173	42	45
Arkansas	1	1	1	94	102	135	118	102	135	58	65
Louisiana	22	16	19	267	228	255	5, 593	3, 650	4, 847	[2] 34	[2] 36
Texas	7	7	9	111	147	164	1, 022	1, 029	1, 476	50	55
United States	106	110	125	155. 5	154. 4	152. 8	17, 605	16, 985	19, 106	39. 9	47. 1

[1] Preliminary. [2] Average price for crop marketing season.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 150.—*Maple sugar and sirup: Production and average price received by producers, United States, 1917–33*

Year	Trees tapped	Sugar made	Sirup made	Total product in terms of sugar [1]	Average total product per tree		Price per pound of sugar	Price per gallon of sirup
					As sugar [1]	As sirup [1]		
	1,000 trees	*1,000 pounds*	*1,000 gallons*	*1,000 pounds*	*Pounds*	*Gallons*	*Cents*	*Dollars*
1917	17, 313	10, 525	4, 258	44, 589	2. 58	0. 32		
1918	19, 132	12, 944	4, 863	51, 848	2. 71	. 34		
1919	16, 639	9, 541	3, 262	35, 637	2. 14	. 27		
1920	16, 672	6, 928	3, 131	31, 976	1. 92	. 24		
1921	14, 160	4, 699	2, 149	21, 891	1. 55	. 19		
1922	15, 198	5, 227	3, 370	32, 187	2. 12	. 26		
1923	14, 178	4, 656	3, 262	30, 752	2. 17	. 27		
1924	14, 193	4, 096	3, 574	32, 688	2. 30	. 29	26. 0	2. 00
1925	14, 070	3, 238	2, 817	25, 774	1. 83	. 23	26. 9	2. 08
1926	13, 948	3, 585	3, 504	31, 617	2. 27	. 28	29. 3	2. 12
1927	13, 751	3, 183	3, 429	30, 615	2. 23	. 28	28. 7	2. 05
1928	13, 489	2, 189	2, 782	24, 445	1. 81	. 23	28. 6	2. 02
1929	12, 858	1, 362	2, 361	20, 250	1. 58	. 20	30. 0	2. 03
1930	13, 062	2, 370	3, 641	31, 498	2. 41	. 30	30. 1	2. 03
1931	12, 138	1, 646	2, 213	19, 350	1. 59	. 20	25. 7	1. 72
1932	12, 091	1, 623	2, 412	20, 919	1. 73	. 22	24. 5	1. 51
1933 [2]	12, 076	1, 322	2, 175	18, 722	1. 55	. 19	21. 0	1. 18

[1] 1 gallon of sirup taken as equivalent to 8 pounds of sugar. [2] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.
Revised 1919-28. See introductory text.

TABLE 151.—*Maple sugar and sirup: Production, by States, average 1926–30, and annual 1932 and 1933*

State	Trees tapped			Sugar made			Sirup made		
	Average, 1926–30	1932	1933 [1]	Average, 1926–30	1932	1933 [1]	Average, 1926–30	1932	1933 [1]
	1,000 trees	*1,000 trees*	*1,000 trees*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 gallons*	*1,000 gallons*	*1,000 gallons*
Maine	253	260	255	22	9	10	43	33	29
New Hampshire	414	413	388	157	100	46	89	83	50
Vermont	5, 624	5, 454	5, 290	1, 263	878	554	1, 179	981	625
Massachusetts	273	257	236	108	71	66	70	65	36
New York	3, 748	3, 132	3, 184	672	341	388	916	695	597
Pennsylvania	889	664	664	170	142	108	246	164	209
Ohio	1, 349	1, 105	1, 216	40	19	66	378	220	402
Michigan	534	467	490	58	33	35	124	98	140
Wisconsin	271	281	295	10	8	24	72	55	62
Maryland	66	58	58	38	22	25	26	18	25
United States	13, 422	12, 091	12, 076	2, 538	1, 623	1, 322	3, 143	2, 412	2, 175

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 152.—*Honey: Monthly average price in specified locations, 1928–33*

EXTRACTED HONEY, PER POUND

Item, location, and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
California White to Water White Orange:												
F.o.b. southern California shipping points: [1]	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1928	10	10	10	9½	8¾	8¾	9	9¼	9¼	9½	9¾	9½
1929	9¾	9¾	9½	9½	10	10¼	11	11¼	11	11	12	------
1930	12¾	12½	13½	10½	8¼	8	7½	7½	7¼	7½	7½	7¾
1931	7¼	7⅛	7¼	6⅜	6½	6¼	6¼	6⅜	6¼	6½	6⅜	6½
1932	6	6	5⅝	4⅞	4½	4½	4¼	4⅜	4⅜	5⅛	5¾	5⅞
1933	6⅜	6⅜	6¼	6¼	5½	5	4⅞	5½	5⅜	5⅜	5¼	5¼
New York City: [2]												
1928	------	------	------	------	12½	12½	12½	12½	12¾	13	12¾	12½
1929	12½	12½	12½	12½	12½	12½	12½	12¾	13	13½	13½	13½
1930	13½	13½	13½	13½	------	12¼	12¼	12⅜	12⅝	12½	12¼	12
1931	11¾	11½	11¼	11	11	10½	10½	10½	11	11	10¼	10⅜
1932	9½	9½	9½	9½	9½	9½	9½	8¾	8⅜	8¾	9	8¾
1933	9¼	9¼	9¼	8⅝	8½	8½	8½	8½	8½	8¾	8¾	8¾
Intermountain White to Water White Sweet Clover and Alfalfa:												
F.o.b. intermountain points: [3]												
1928	7¼	7½	7¼	7¼	7¼	7	7¼	7	7¼	7¼	7	7
1929	7⅛	7⅛	7⅜	7⅝	7¾	7½	7	7⅜	7¼	7⅛	7¼	7⅛
1930	7¼	7¼	7	6⅞	6½	5¾	6¼	6½	5¾	5½	5⅜	5¾
1931	5¼	5½	5½	5⅛	4⅞	4⅝	5⅛	5⅛	5⅛	5	5⅛	4⅞
1932	4¾	5	5	4¾	5	4⅞	4¾	3¾	3¾	3¾	3¾	3⅝
1933	3⅝	3¾	3⅞	3¾	3⅞	3⅞	4	4½	4¾	4⅞	4¾	4⅝
White Clover:												
F.o.b. New York and North Central States: [4]												
1928	8½	8¼	8	8	8	8½	9¼	9	8¾	8½	9	8½
1929	8¾	8¾	9	9¼	8¾	9	9½	8¾	8½	8¼	8¼	8
1930	8¼	8¼	8¼	8¼	8⅛	7¾	7¾	8	7¾	7¼	7⅜	7½
1931	7⅜	6⅞	6¾	6¾	6¾	6⅞	6¾	6¾	6⅝	7	6⅝	6⅜
1932	6½	6¼	6¼	5⅞	6	5¾	6	5⅜	5½	5¼	5	4⅞
1933	5	5	4¾	5	5	5	5	5½	6	6⅛	6⅛	6
Northeastern Buckwheat:												
F.o.b. New York and Pennsylvania points: [4]												
1928	7¼	7¼	7¼	6¾	------	------	------	8	7¾	7½	7½	7¼
1929	7¾	7½	7	7¼	7½	7½	------	8½	7⅞	8	7⅝	7¼
1930	7¾	6½	6¾	7⅜	------	7	------	8	6½	6½	5½	6
1931	------	5¾	5⅜	5¾	------	------	5½	------	5	5	5	5
1932	5¼	4¾	4¾	4½	4¾	------	------	4⅜	4½	4⅜	------	4
1933	3⅞	4	3⅞	3⅞	4⅛	4¼	3⅞	------	4¾	4¾	4¾	5⅛

COMB HONEY, 24-SECTION CASES

Item, location, and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
White Clover Comb, No. 1 and Fancy wrapped:												
F.o.b. New York and North Central States: [4]	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1928	4.80	4.80	4.50	4.80	4.50	4.25	4.50	4.50	4.50	4.50	4.80	4.50
1929	4.80	4.50	4.25	4.25	4.50	4.25	4.50	4.50	4.25	4.00	4.00	4.00
1930	4.25	4.00	4.00	4.00	4.25	4.00	4.00	4.25	4.25	4.00	4.00	3.75
1931	3.80	3.75	3.60	3.40	3.25	3.50	3.50	3.60	3.75	3.50	3.50	3.40
1932	3.30	3.25	3.35	3.25	3.30	3.35	3.50	3.15	2.85	2.65	2.70	2.60
1933	2.40	2.40	2.30	2.50	2.40	2.50	2.40	2.65	3.00	3.00	3.00	2.90

[1] Price to beekeepers or other shippers in large lots, mostly less than car lots.
[2] Sales by original receivers to bottlers, confectioners, bakers, and jobbers.
[3] Price to beekeepers and other shippers, in car lots.
[4] Price to beekeepers in large lots, mostly less than car lots.

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TABLE 153.—*Tobacco, unmanufactured: Acreage, production, value, foreign trade, etc., United States, 1890–1933*

Year	Acreage harvested	Average yield per acre	Production	Price per pound received by producers, Dec. 1 [1]	Farm value, basis Dec. 1 price	Domestic exports, year beginning July [2]	Imports, year beginning July [2]	Net exports, year beginning July [2] [3]
	Acres	*Pounds*	*1,000 pounds*	*Cents*	*1,000 dollars*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1890	722,028	722.8	518,683	8.3	42,846	249,233	23,255	227,254
1891	738,216	747.4	551,777	8.5	47,074	255,432	21,989	234,587
1892	720,189	687.6	495,209	9.3	46,044	266,083	28,110	239,153
1893	702,952	687.1	483,024	8.1	39,155	290,685	19,663	272,983
1894	523,103	777.4	406,678	6.8	27,761	300,992	26,668	276,223
1895	633,950	775.4	491,544	7.2	35,574	295,539	32,925	266,317
1896	594,749	677.6	403,004	6.0	24,258	314,932	13,805	302,847
1897	[4] 945,604	646.0	610,860			263,020	10,477	254,907
1898	[4] 933,868	748.0	698,533			283,613	14,036	271,559
1899	*1,101,460*	*788.1*	*868,113*					
1899	1,101,500	728.5	802,397	7.1	57,273	344,656	19,620	326,939
1900	1,046,427	778.2	814,345	6.6	53,661	315,788	26,851	290,915
1901	1,039,199	788.0	818,953	7.1	58,283	301,007	29,429	273,770
1902	1,030,734	797.3	821,824	7.0	57,564	368,184	34,017	337,902
1903	1,037,735	786.3	815,972	6.8	55,515	311,972	31,163	286,335
1904	806,409	819.0	660,461	8.1	53,383	334,302	33,288	304,694
1905	776,112	815.6	633,034	8.5	53,519	312,227	41,126	273,912
1906	796,099	857.2	682,429	10.0	68,233	340,743	40,899	302,506
1907	820,800	850.5	698,126	10.2	71,411	330,813	35,005	297,657
1908	875,425	820.2	718,061	10.3	74,130	287,901	43,123	247,155
1909	*1,294,911*	*815.3*	*1,055,765*					
1909	1,294,900	814.8	1,055,133	10.1	106,374	357,196	46,838	313,085
1910	1,366,100	807.7	1,103,415	9.3	102,142	355,327	48,203	309,171
1911	1,013,000	893.7	905,109	9.4	85,210	379,845	54,740	327,199
1912	1,226,000	785.5	962,855	10.8	104,063	418,797	67,977	353,575
1913	1,216,100	784.3	953,734	12.8	122,481	449,750	61,175	391,196
1914	1,223,500	845.7	1,034,679	9.8	101,411	348,346	45,809	306,426
1915	1,369,900	775.4	1,062,237	9.1	96,281	443,293	48,078	400,624
1916	1,413,400	816.0	1,153,278	14.7	169,672	411,599	49,105	370,987
1917	1,517,800	823.1	1,249,276	24.0	300,449	289,171	86,991	211,962
1918	1,647,100	873.7	1,439,071	28.0	402,264	629,288	83,951	577,323
1919	*1,861,480*	*736.8*	*1,371,504*					
1919	1,958,500	737.4	1,444,206	31.2	451,171	648,038	94,005	570,858
1920	1,934,800	780.0	1,509,212	17.3	260,350	506,526	58,923	456,477
1921	1,339,500	750.2	1,004,928	19.5	196,113	463,389	65,225	403,492
1922	1,616,200	776.1	1,254,304	22.8	286,417	454,364	75,786	384,223
1923	1,855,000	818.1	1,517,583	19.0	288,102	597,630	54,497	548,287
1924	*1,537,843*	*719.4*	*1,106,340*					
1924	1,702,300	731.3	1,244,928	19.0	236,937	430,702	76,870	355,739
1925	1,750,700	786.0	1,376,008	16.8	230,642	537,240	69,974	468,958
1926	1,628,400	791.7	1,289,272	17.9	231,208	516,402	92,983	424,651
1927	1,555,900	778.5	1,211,311	20.7	250,462	489,996	81,045	411,366
1928	1,864,400	736.5	1,373,214	20.0	274,620	565,925	79,284	489,149
1929	*1,888,365*	*771.3*	*1,456,510*					
1929	1,987,600	773.5	1,537,313	18.6	286,152	600,181	63,181	541,312
1930	2,111,600	780.2	1,647,377	12.9	212,467	591,035	75,425	517,388
1931	2,014,000	798.2	1,607,484	8.2	131,498	432,361	73,375	359,374
1932	1,413,800	723.3	1,022,558	10.5	107,357	399,967	59,230	341,572
1933 [5]	1,753,700	796.1	1,396,174	12.9	180,647			

[1] Beginning with 1919 prices are average prices for crop marketing season.

[2] Compiled from Commerce and Navigation of the United States, 1890–1917; Foreign Commerce and Navigation of the United States, 1918; Monthly Summary of Foreign Commerce of the United States, June issues 1919–26, January and June issues, 1927–33, and official records of the Bureau of Foreign and Domestic Commerce.

[3] Total exports (domestic exports plus foreign) minus imports.

[4] Revised on basis of 1899.

[5] Preliminary.

Bureau of Agricultural Economics.

Italic figures are census returns; other acreage, yield, and production figures are estimates of the Crop Reporting Board, revised, 1919–28. See introductory text. See p. 970, 1927 Yearbook, for data for earlier years.

TABLE 154.—*Tobacco: Acreage, yield, production, and average price per pound received by producers, by types, 1932 and 1933*

Class and type	Type no.	Acreage harvested		Yield per acre		Production		Price for crop of 1932
		1932	1933 [1]	1932	1933 [1]	1932	1933 [1]	
Flue cured:		*Acres*	*Acres*	*Lb.*	*Lb.*	*1,000 lb.*	*1,000 lb.*	*Cents*
Old Belt	11	240, 500	316, 100	586	699	141, 040	221, 029	10. 2
Eastern North Carolina Belt	12	242, 000	357, 000	629	790	152, 218	282, 030	12. 5
South Carolina Belt	13	110, 500	167, 200	630	860	69, 624	143, 775	12. 6
Georgia-Florida Belt	14	25, 000	70, 800	531	871	13, 275	61, 654	10. 5
Total	11–14	618, 000	911, 100	609	778	376, 157	708, 488	11. 6
Fire cured:								
Virginia	21	20, 700	31, 000	654	800	13, 538	24, 800	8. 0
Clarksville and Hopkinsville	22	97, 000	96, 000	809	806	78, 482	77, 355	6. 3
Paducah	23	36, 500	42, 000	817	775	29, 810	32, 550	4. 6
Henderson Stemming	24	5, 500	5, 000	835	750	4, 592	3, 750	3. 4
Total	21–24	159, 700	174, 000	792	796	126, 422	138, 455	6. 0
Air cured (light):								
Burley	31	425, 100	515, 400	738	808	313, 604	416, 252	12. 6
Southern Maryland	32	33, 900	32, 200	775	550	26, 272	17, 710	17. 0
Total	31–32	459, 000	547, 600	740	792	339, 876	433, 962	12. 9
Air cured (dark):								
One Sucker	35	22, 600	25, 700	799	813	18, 047	20, 905	4. 8
Green River	36	26, 000	24, 500	810	760	21, 060	18, 620	3. 4
Virginia sun cured	37	2, 200	2, 900	590	785	1, 298	2, 276	6. 1
Total	35–37	50, 800	53, 100	795	787	40, 405	41, 801	4. 1
Cigar filler:								
Pennsylvania seed leaf	41	41, 700	25, 000	1, 101	1, 049	45, 912	26, 225	5. 2
Miami Valley	42–44	29, 700	12, 000	730	725	21, 687	8, 703	4. 0
Georgia and Florida sun grown	45	300	100	633	825	190	82	10. 0
Total	41–45	71, 700	37, 100	945	944	67, 789	35, 010	4. 8
Cigar binder:								
Connecticut Valley broadleaf	51	6, 900	5, 900	1, 581	1, 501	10, 911	8, 856	11. 5
Connecticut Valley Havana seed	52	9, 600	4, 600	1, 554	1, 508	14, 921	6, 935	8. 8
New York and Pennsylvania Havana seed	53	1, 800	900	1, 002	1, 176	1, 804	1, 058	3. 5
Southern Wisconsin	54	19, 200	8, 400	1, 300	1, 210	24, 960	10, 164	3. 3
Northern Wisconsin	55	9, 400	4, 500	1, 264	1, 105	11, 880	4, 974	3. 6
Total	51–55	46, 900	24, 300	1, 375	1, 316	64, 476	31, 987	6. 0
Cigar wrapper:								
Connecticut Valley shade grown	61	4, 500	4, 700	1, 000	1, 052	4, 499	4, 943	59. 0
Georgia and Florida shade grown	62	2, 400	1, 300	1, 005	931	2, 412	1, 210	35. 0
Total	61–62	6, 900	6, 000	1, 002	1, 026	6, 911	6, 153	50. 6
Miscellaneous types:								
Eastern Ohio		400	200	875	950	350	190	6. 0
Louisiana Perique		400	300	430	425	172	128	25. 0
Total		800	500	652	636	522	318	12. 3
United States	All.	1, 413, 800	1, 753, 700	723. 3	796. 1	1, 022, 558	1, 396, 174	10. 5

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 155.—*Tobacco: Acreage, yield, production, and average price per pound received by producers, by States, averages, and annual 1932 and 1933*

State	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1926–30	1932	1933 [1]	Average, 1921–30	1932	1933 [1]	Average, 1926–30	1932	1933 [1]	1932	1933 [1]
	Acres	*Acres*	*Acres*	*Lb.*	*Lb.*	*Lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*Cents*	*Cents*
Massachusetts	7,980	5,600	3,600	1,338	1,470	1,403	10,845	8,232	5,051	13.1	21.1
Connecticut	23,160	15,400	11,600	1,314	1,435	1,352	30,054	22,099	15,683	18.7	25.7
New York	1,000	1,400	600	1,134	1,000	1,200	1,132	1,400	720	3.5	4.0
Pennsylvania	37,760	42,100	25,300	1,285	1,100	1,050	46,903	46,316	26,563	5.2	5.5
Ohio	40,460	45,100	31,300	856	731	797	33,901	32,981	24,945	6.9	8.1
Indiana	14,600	13,700	17,000	847	734	760	11,818	10,057	12,920	9.9	7.6
Wisconsin	35,500	28,000	12,600	1,186	1,292	1,180	43,133	36,180	14,868	3.4	3.6
Minnesota	1,180	600	300	[2] 1,136	1,100	900	1,402	660	270	3.0	3.2
Missouri	4,800	8,200	9,000	956	1,025	925	4,625	8,405	8,325	14.0	12.0
Maryland	32,400	33,900	32,200	747	775	550	23,230	26,272	17,710	17.0	18.0
Virginia	182,600	91,000	122,000	655	611	744	120,930	55,616	90,725	8.5	13.4
West Virginia	5,900	3,700	6,700	758	625	740	4,362	2,312	4,958	14.2	12.0
North Carolina	682,000	470,000	673,000	678	625	770	486,948	293,694	518,522	12.0	16.1
South Carolina	112,800	68,000	101,000	697	577	850	81,408	39,236	85,850	12.5	12.6
Georgia	90,700	23,500	66,000	756	535	881	75,479	12,565	58,124	11.3	11.4
Florida	9,480	4,200	6,200	921	789	778	8,376	3,312	4,822	25.2	14.7
Kentucky	420,800	424,000	477,000	796	745	775	324,452	315,862	369,780	9.9	10.1
Tennessee	126,200	135,000	158,000	793	794	862	102,589	107,187	136,210	9.9	10.5
Louisiana	260	400	300	426	430	425	110	172	128	25.0	20.0
United States	1,829,580	1,413,800	1,753,700	772.2	723.3	796.1	1,411,697	1,022,558	1,396,174	10.5	12.9

[1] Preliminary.
[2] 7-year average.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 156.—*Tobacco: Acreage, yield per acre and production in specified countries, 1931–32 to 1933–34* [1]

Country	Acreage			Yield per acre [2]			Production		
	1931–32	1932–33	1933–34 [3]	1931–32	1932–33	1933–34	1931–32	1932–33	1933–34 [3]
NORTH AMERICA, CENTRAL AMERICA, AND WEST INDIES	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Pounds*	*Pounds*	*Pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Canada	55	54	46	932	999	857	51,300	54,094	39,400
United States	2,014	1,414	1,754	798	723	796	1,607,484	1,022,558	1,396,174
Mexico	35	33	-------	720	748	-------	25,183	24,561	-------
Cuba	188	93	112	427	372	324	80,670	34,693	36,352
Dominican Republic	-------	-------	-------	-------	-------	-------	-------	[4] 11,574	-------
Puerto Rico	50	10	25	746	546	672	37,300	5,500	17,000
EUROPE									
Sweden	1	-------	-------	1,409	-------	-------	961	-------	-------
Belgium	7	7	7	2,066	1,955	1,961	14,469	13,688	13,726
Germany	26	27	30	1,992	2,321	-------	51,104	62,223	-------
Poland	13	13	-------	1,349	1,467	-------	17,936	18,921	-------
Russia	[4] 378	[4] 667	-------	747	1,044	-------	[4] 282,240	[4] 696,640	-------
France	39	41	-------	1,771	1,690	-------	69,559	70,106	-------
Switzerland	1	1	-------	1,427	1,557	-------	882	1,698	-------
Czechoslovakia	22	25	25	1,363	1,505	1,219	30,495	37,623	30,479
Hungary	62	61	46	1,291	1,429	1,399	80,324	87,017	63,933
Rumania	40	25	25	625	616	-------	24,926	15,609	-------
Spain	9	10	12	1,455	1,660	1,194	12,991	16,605	14,330
Italy	103	99	85	1,000	1,030	1,009	103,029	101,677	85,562
Yugoslavia	53	44	22	655	857	776	34,391	37,934	17,013
Bulgaria	86	50	57	811	763	679	69,384	38,256	38,611
Greece	209	157	[4] 190	457	412	421	95,273	64,497	[4] 80,084

See footnotes at end of table.

TABLE 156.—*Tobacco: Acreage, yield per acre, and production in specified countries, 1931–32 to 1933–34* [1]—Continued

Country	Acreage			Yield per acre [2]			Production		
	1931–32	1932–33	1933–34 [3]	1931–32	1932–33	1933–34	1931–32	1932–33	1933–34 [3]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Pounds*	*Pounds*	*Pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
ASIA									
Turkey	170	65	----	665	612	----	112,679	39,771	77,927
Syria and Lebanon	19	11	8	614	515	525	11,671	5,669	4,199
Palestine	3	----	----	334	----	----	1,112	----	----
India	1,276	----	----	[5] 1,088	----	----	[5] 1,388,800	----	----
Ceylon	14	14	----	----	----	----	----	----	----
Siam	22	----	----	709	----	----	15,858	----	----
Indo-China	[6] 21	----	----	[7] 609	----	----	[7] 10,190	----	----
Japan	90	84	84	1,731	1,646	1,657	155,757	138,230	139,200
Chosen (Korea)	37	33	33	971	1,313	1,065	36,245	43,897	35,635
Taiwan (Formosa)	2	----	----	1,493	----	----	2,796	----	----
Philippine Islands	184	193	----	522	515	----	95,954	99,529	----
Java and Madura [8]	86	68	----	825	875	----	71,115	59,339	----
Sumatra	48	42	----	833	725	----	40,012	30,559	----
SOUTH AMERICA									
Brazil	[9] 90	----	----	842	----	----	[9] 187,153	----	----
Chile	5	5	----	1,817	----	----	8,403	----	----
Argentina	31	27	----	940	1,079	----	28,953	29,617	----
Paraguay	23	----	----	1,338	----	----	31,177	----	----
Uruguay	2	----	----	987	----	----	1,564	----	----
AFRICA									
Algeria	57	59	49	703	685	675	39,862	40,663	33,069
Tunis	2	1	1	980	1,008	959	1,637	1,306	1,162
Tripolitania	1	----	----	1,785	----	----	1,323	----	----
Tanganyika	6	6	----	382	[10] 304	----	2,316	[10] 1,888	----
Nyasaland	49	----	----	402	----	----	19,477	12,250	----
Northern Rhodesia	2	----	----	479	----	----	1,185	----	----
Southern Rhodesia	26	32	----	599	479	----	15,368	15,578	----
Union of South Africa	----	----	----	----	----	----	[11] 21,100	[11] 10,250	----
Madagascar	22	----	----	802	----	----	17,637	----	----
OCEANIA									
Australia	18	----	----	573	----	----	10,160	----	----
New Zealand	3	3	----	700	700	----	1,820	2,207	----
Total, all countries reporting acreage and production all years	3,063	2,212	2,556	----	----	----	2,462,282	1,743,907	2,045,929
Estimated world total [12]	----	----	----	----	----	----	5,168,000	----	----

[1] Acreage and production figures are for the harvesting season. In the Northern Hemisphere, data for 1931–32, for example, are for crops harvested in the summer and fall of 1931; in the Southern Hemisphere they are for crops harvested in the spring of 1932, except in the Dutch East Indies, where the harvest was largely completed in 1931.
[2] Calculated from actual acreage and production, except in instances where rounded figures only were available.
[3] Preliminary.
[4] Unofficial.
[5] Exclusive of Northwest Frontier Province.
[6] Exclusive of Cambodia.
[7] Exclusive of Cambodia and Tonking.
[8] Data for European plantations only.
[9] 1930–31.
[10] Exclusive of Kibondo district, where 15 acres were grown.
[11] Exclusive of production in native locations and reserves, which is estimated at 1,000,000 pounds annually.
[12] Exclusive of China. An official estimate of the "average" annual production in 25 of the 28 Provinces in China, issued in 1932, was 465,000,000 pounds. The production of flue-cured tobacco was estimated at 105,000,000 pounds in 1932–33 and between 131,000,000 and 141,000,000 pounds in 1933–34.

Bureau of Agricultural Economics; compiled from official sources, International Institute of Agriculture, and reports of United States consuls, commercial attachés, agricultural attachés, and commodity specialists in foreign countries, except as otherwise stated.

TABLE 157.—*Tobacco, unmanufactured: Production, stocks, supply, disappearance and price in continental United States, 1919–33* [1]

Year	Production	Stocks Oct. 1, green weight [3]	Total supply	Disappearance, beginning Oct. 1	Season average farm price per pound	Year	Production	Stocks Oct. 1, green weight [3]	Total supply	Disappearance, beginning Oct. 1	Season average farm price per pound
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*	*Cents*		*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Cents*
FLUE-CURED, TYPES 11–14 [2]											
1919	476.9	382.6	859.5	504.1	44.4	1927	718.8	543.3	1,262.1	598.9	20.5
1920	616.0	355.4	971.4	409.1	21.5	1928	739.1	663.2	1,402.3	707.9	17.3
1921	358.8	562.3	921.1	403.7	21.9	1929	749.8	694.4	1,444.2	735.2	18.0
1922	415.4	517.4	932.8	421.0	27.2	1930	864.3	709.0	1,573.3	772.4	12.0
1923	580.7	511.8	1,092.5	542.5	20.8	1931	669.2	800.9	1,470.1	596.2	8.4
1924	437.3	550.0	987.3	456.7	21.6	1932	376.2	873.9	1,250.1	568.9	11.6
1925	575.1	530.6	1,105.7	577.8	20.0	1933	708.5	681.2	1,389.7	-------	-------
1926	560.1	527.9	1,088.0	544.7	24.9						
VIRGINIA FIRE-CURED, TYPE 21											
1919	29.8	42.2	72.0	34.1	24.0	1927	26.6	67.8	94.4	35.2	9.9
1920	45.7	37.9	83.6	41.2	9.1	1928	21.9	59.2	81.1	43.4	10.6
1921	24.7	42.4	67.1	37.0	18.8	1929	22.8	37.7	60.5	26.8	16.9
1922	49.1	30.1	79.2	46.4	19.8	1930	23.3	33.7	57.0	22.5	8.3
1923	43.7	32.8	76.5	35.1	18.1	1931	28.3	34.5	62.8	23.8	4.7
1924	43.2	41.4	84.6	32.7	19.4	1932	13.5	39.0	52.5	20.0	8.0
1925	42.1	51.9	94.0	33.8	16.2	1933	24.8	32.5	57.3	-------	-------
1926	43.8	60.2	104.0	36.2	7.8						
KENTUCKY AND TENNESSEE FIRE-CURED, TYPES 22 AND 23											
1919	238.0	153.9	391.9	196.7	[4] 19.1 / [5] 15.1	1924	156.5	155.4	311.9	148.2	[4] 16.1 / [5] 10.8
1920	182.4	195.2	377.6	208.5	[4] 11.7 / [5] 9.1	1925	154.7	163.7	318.4	135.2	[4] 9.9 / [5] 6.9
1921	137.4	169.1	306.5	165.5	[4] 18.6 / [5] 14.2	1926	135.1	318.2	318.3	143.0	[4] 8.6 / [5] 6.1
1922	186.9	141.0	327.9	175.3	[4] 16.4 / [5] 13.2	1927	82.7	175.3	258.0	134.4	[4] 18.4 / [5] 12.2
1923	203.2	152.6	355.8	200.4	[4] 12.2 / [5] 10.8	1928	108.6	123.6	232.2	119.6	[4] 15.8 / [5] 12.6
KENTUCKY AND TENNESSEE FIRE-CURED, TYPE 22											
1929	107.6	89.9	197.5	102.8	14.2	1932	78.5	129.1	207.6	57.9	6.3
1930	96.0	94.7	190.7	80.0	9.9	1933	77.4	149.7	227.1	-------	-------
1931	101.3	110.8	212.1	83.0	5.8						
KENTUCKY AND TENNESSEE FIRE-CURED, TYPE 23											
1929	47.4	22.7	70.1	48.9	10.0	1932	29.8	42.3	72.1	42.9	4.6
1930	38.0	21.2	59.2	29.5	5.6	1933	32.6	29.2	61.8	-------	-------
1931	53.9	29.7	83.6	41.3	4.0						
HENDERSON FIRE-CURED, TYPE 24											
1919	19.5	10.2	29.7	13.1	16.0	1927	4.2	8.9	13.1	7.5	9.7
1920	12.5	16.6	29.1	19.2	10.0	1928	6.0	5.6	11.6	10.8	13.9
1921	8.3	9.9	18.2	13.5	15.0	1929	9.5	.8	10.3	9.4	9.5
1922	14.1	4.7	18.8	15.2	15.0	1930	8.9	.9	9.8	5.9	6.9
1923	14.5	3.6	18.1	13.5	12.0	1931	7.3	3.9	11.2	6.2	4.0
1924	14.2	4.6	18.8	11.8	2.0	1932	4.6	5.0	9.6	4.9	3.4
1925	14.0	7.0	21.0	12.1	7.3	1933	3.8	4.7	8.5	-------	-------
1926	9.9	8.9	18.8	9.9	7.4						
BURLEY, TYPE 31											
1919	300.3	288.2	588.5	257.7	33.2	1927	176.2	537.6	713.8	291.3	25.9
1920	287.7	330.8	618.5	223.2	13.5	1928	269.1	422.5	691.6	288.6	30.5
1921	175.7	395.3	571.0	230.4	21.5	1929	342.2	403.0	745.2	297.1	21.8
1922	276.4	340.6	617.0	208.2	26.8	1930	357.7	448.1	805.8	284.2	15.5
1923	340.4	408.8	749.2	232.5	20.0	1931	455.0	521.6	976.6	279.5	8.7
1924	295.8	516.7	812.5	265.7	20.1	1932	313.6	697.8	1,011.4	275.0	12.6
1925	277.8	546.8	824.6	271.3	18.0	1933	416.3	736.4	1,152.7	-------	-------
1926	288.8	553.3	842.1	304.5	13.1						

See footnotes at end of table.

TABLE 157.—*Tobacco, unmanufactured: Production, stocks, supply, disappearance, and price in continental United States, 1919–33* [1]—Continued

Year	Production	Stocks Oct. 1, green, weight [3]	Total supply	Disappearance, beginning Oct. 1	Season average farm price per pound	Year	Production	Stocks Oct. 1, green, weight [3]	Total supply	Disappearance, beginning Oct. 1	Season average farm price per pound
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*	*Cents*		*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Cents*
SOUTHERN MARYLAND, TYPE 32 [6]											
1919	19.6	22.9	42.5	24.5	26.5	1927	26.2	16.4	42.6	20.8	23.4
1920	27.1	18.0	45.1	29.7	17.8	1928	20.5	21.8	42.3	25.6	27.2
1921	18.6	15.4	34.0	22.1	16.9	1929	24.8	16.7	41.5	23.1	27.7
1922	20.0	11.9	31.9	24.3	23.8	1930	18.7	18.4	37.1	14.4	26.6
1923	21.4	7.6	29.0	16.1	27.7	1931	28.1	22.7	50.8	17.1	15.0
1924	24.5	12.9	37.4	21.1	22.7	1932	26.3	33.7	60.0	19.4	17.0
1925	24.7	16.3	41.0	20.9	23.7	1933	17.7	40.6	58.3	-------	-------
1926	26.0	20.1	46.1	29.7	20.2						
ONE SUCKER, TYPE 35											
1919	68.7	37.2	105.9	54.5	14.2	1927	13.1	47.4	60.5	30.0	10.6
1920	53.6	51.4	105.0	50.6	7.2	1928	20.0	30.5	50.5	26.3	12.4
1921	28.3	54.4	82.7	41.1	12.2	1929	29.9	24.2	54.1	25.3	10.5
1922	52.2	41.6	93.8	55.3	12.8	1930	29.4	28.8	58.2	21.7	7.0
1923	55.1	38.5	93.6	46.3	9.9	1931	29.8	36.5	66.3	28.3	3.5
1924	39.0	47.3	86.3	38.3	11.2	1932	18.0	38.0	56.0	21.6	4.8
1925	35.5	48.0	83.5	26.9	8.4	1933	20.9	34.4	55.3	-------	-------
1926	31.2	56.6	87.8	40.4	6.4						
GREEN RIVER, TYPE 36											
1919	60.1	49.3	109.4	51.4	16.0	1927	18.1	57.2	75.3	27.8	9.1
1920	47.5	58.0	105.5	51.8	9.0	1928	18.9	47.5	66.4	30.1	11.5
1921	34.6	53.7	88.3	41.8	15.0	1929	27.4	36.3	63.7	35.8	10.7
1922	57.2	46.5	103.7	41.6	16.0	1930	28.3	27.9	56.2	27.7	8.9
1923	59.0	62.1	121.1	56.3	11.0	1931	42.9	28.5	71.4	28.9	3.3
1924	47.6	64.8	112.4	51.0	11.6	1932	21.1	42.5	63.6	20.9	3.4
1925	51.0	61.4	112.4	50.9	6.9	1933	18.6	42.7	61.3	-------	-------
1926	40.0	61.5	101.5	44.3	7.4						
VIRGINIA SUN-CURED, TYPE 37											
1919	6.0	10.9	16.9	4.8	28.0	1927	5.5	7.6	13.1	6.6	13.1
1920	9.1	12.1	21.2	9.0	9.2	1928	5.0	6.5	11.5	4.7	10.1
1921	4.0	12.2	16.2	5.6	18.2	1929	4.1	6.8	10.9	6.0	13.2
1922	8.2	10.6	18.8	8.6	14.3	1930	3.4	4.9	8.3	3.8	7.7
1923	6.2	10.2	16.4	8.6	13.2	1931	3.2	4.5	7.7	3.3	5.3
1924	5.6	7.8	13.4	8.1	14.6	1932	1.3	4.4	5.7	1.6	6.1
1925	5.7	5.3	11.0	5.6	16.4	1933	2.3	4.1	6.4	-------	-------
1926	7.2	5.4	12.6	5.0	9.4						
PENNSYLVANIA SEED LEAF, TYPE 41 [7]											
1919	55.7	106.0	161.7	47.9	18.0	1927	46.6	108.8	155.4	45.9	12.9
1920	62.0	113.8	175.8	68.0	11.8	1928	50.7	109.5	160.2	52.0	13.9
1921	57.9	107.8	165.7	49.1	14.3	1929	50.8	108.2	159.0	55.2	12.0
1922	54.4	116.6	171.0	43.0	15.8	1930	39.4	103.8	143.2	45.6	6.4
1923	54.7	128.0	182.7	40.9	18.0	1931	57.1	97.6	154.7	16.0	7.4
1924	56.8	141.8	198.6	53.9	15.6	1932	45.9	138.8	184.7	57.7	5.2
1925	56.4	144.7	201.1	66.6	10.0	1933	26.2	127.0	153.2	-------	-------
1926	43.9	134.5	178.4	69.6	10.3						
MIAMI VALLEY, TYPES 42–44											
1919	39.0	88.1	127.1	25.6	20.0	1927	12.2	73.7	85.9	24.1	15.6
1920	38.6	101.5	140.1	40.3	16.0	1928	15.6	61.8	77.4	25.5	17.5
1921	28.2	99.8	128.0	33.9	11.0	1929	20.7	51.9	72.6	25.5	13.8
1922	26.6	94.1	120.7	25.9	14.0	1930	32.3	47.1	79.4	10.3	10.1
1923	25.9	94.8	120.7	26.3	13.0	1931	33.5	69.1	102.6	28.9	5.5
1924	25.2	94.4	119.6	47.7	13.0	1932	21.7	73.7	95.4	25.7	4.0
1925	34.1	71.9	106.0	14.5	11.4	1933	8.7	69.7	78.4	-------	-------
1926	21.8	91.5	113.3	39.6	8.5						

See footnotes at end of table.

TABLE 157.—*Tobacco, unmanufactured: Production, stocks, supply, disappearance, and price in continental United States, 1919–33* [1]—Continued

Year	Production	Stocks Oct. 1, green, weight [3]	Total supply	Disappearance, beginning Oct. 1	Season average farm price per pound		Year	Production	Stocks Oct. 1, green, weight [3]	Total supply	Disappearance, beginning Oct. 1	Season average farm price per pound	
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*	*Cents*			*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Cents*	
GEORGIA AND FLORIDA SUN-GROWN AND SHADE-GROWN, TYPES 45 AND 62													
1919	6.0	7.8	13.8	5.3	[8] 20.4	[9] 65.0	1924	4.7	8.5	13.2	6.3	[8] 20.1	[9] 60.0
1920	5.7	8.5	14.2	3.5	[8] 19.0	[9] 60.0	1925	3.4	6.9	10.3	3.9	[8] 20.0	[9] 65.0
1921	5.0	10.7	15.7	5.2	[8] 9.9	[9] 60.0	1926	4.1	6.4	10.5	4.2	[8] 20.0	[9] 65.0
1922	4.8	10.5	15.3	5.9	[8] 12.0	[9] 50.4	1927	5.2	6.3	11.5	2.4	[8] 20.0	[9] 65.0
1923	6.0	9.4	15.4	6.9	[8] 21.0	[9] 58.0	1928	5.5	9.1	14.6	5.7	[8] 20.0	[9] 55.0
GEORGIA AND FLORIDA SUN-GROWN, TYPE 45													
1929	1.9	2.9	4.8	1.4	20.0		1932	0.2	3.2	3.4	0.7	10.0	
1930	1.5	3.4	4.9	1.3	20.0		1933	.1	2.7	2.8	-------	-------	
1931	1.1	3.6	4.7	1.5	15.0								
CONNECTICUT VALLEY BROADLEAF, TYPE 51													
1919	28.2	30.2	58.4	23.8	44.8		1927	17.0	47.3	64.3	24.3	21.0	
1920	27.5	34.6	62.1	23.9	39.2		1928	16.1	40.0	56.1	16.5	21.0	
1921	28.6	38.2	66.8	25.8	19.9		1929	12.1	39.6	51.7	20.0	27.4	
1922	14.8	41.0	55.8	12.8	30.0		1930	18.5	31.7	50.2	11.8	25.1	
1923	20.4	43.0	63.4	13.1	35.0		1931	18.7	38.4	57.1	10.4	14.1	
1924	22.9	50.3	73.2	17.0	20.0		1932	10.9	46.7	57.6	10.0	11.5	
1925	26.5	56.2	82.7	27.9	18.9		1933	8.9	47.6	56.5	-------	-------	
1926	18.9	54.8	73.7	26.4	26.0								
CONNECTICUT VALLEY HAVANA SEED, TYPE 52 [10]													
1919	23.9	29.6	53.5	17.7	31.8		1927	15.8	54.1	69.9	22.6	23.8	
1920	21.9	35.8	57.7	25.1	36.4		1928	17.2	47.3	64.5	24.5	24.2	
1921	22.6	32.6	55.2	11.0	23.0		1929	18.1	40.0	58.1	16.0	31.1	
1922	18.0	44.2	62.2	10.9	29.3		1930	17.9	42.1	60.0	17.3	21.9	
1923	24.2	51.3	75.5	18.3	35.4		1931	15.4	42.8	58.2	10.8	13.0	
1924	23.1	57.2	80.3	19.2	19.2		1932	14.9	47.4	62.3	17.6	8.8	
1925	21.2	61.1	82.3	21.7	16.2		1933	6.9	44.7	51.6	-------	-------	
1926	16.2	60.6	76.8	22.7	27.2								
NEW YORK AND PENNSYLVANIA HAVANA SEED, TYPE 53 [7]													
1919	4.1	2.9	7.0	3.9	22.5		1927	1.9	4.0	5.9	3.1	18.0	
1920	3.6	3.1	6.7	2.2	27.0		1928	1.6	2.8	4.4	1.6	19.3	
1921	3.7	4.5	8.2	2.5	19.3		1929	1.4	2.8	4.2	1.5	15.4	
1922	3.3	5.7	9.0	4.8	25.0		1930	1.5	2.7	4.2	.4	11.7	
1923	3.5	4.2	7.7	3.7	21.3		1931	2.1	3.8	5.9	1.0	9.5	
1924	3.4	4.0	7.4	1.9	21.9		1932	1.8	4.9	6.7	2.0	3.5	
1925	3.2	5.5	8.7	3.0	20.1		1933	1.1	4.7	5.8	-------	-------	
1926	2.5	5.7	8.2	4.2	19.5								
WISCONSIN, TYPES 54 AND 55													
1919	56.9	91.7	148.6	36.0	[11] 20.0	[12] 26.0	1924	36.4	147.4	183.8	52.7	[11] 9.6	[12] 14.1
1920	58.7	112.6	171.3	46.9	[11] 12.6	[12] 17.2	1925	44.9	131.1	176.0	52.6	[11] 11.6	[12] 13.8
1921	58.9	124.4	183.3	24.0	[11] 6.7	[12] 12.3	1926	33.8	123.4	157.2	45.7	[11] 12.8	[12] 15.4
1922	43.3	159.3	202.6	46.3	[11] 13.0	[12] 14.4	1927	33.9	111.5	145.4	47.5	[11] 14.0	[12] 18.9
1923	47.0	156.3	203.3	55.9	[11] 8.6	[12] 12.1	1928	49.3	97.9	147.2	32.1	[11] 13.7	[12] 15.9

See footnotes at end of table.

TABLE 157.—*Tobacco, unmanufactured: Production, stocks, supply, disappearance, and price in continental United States, 1919–33* [1]—Continued

Year	Production	Stocks Oct. 1, green, weight [3]	Total supply	Disappearance, beginning Oct. 1	Season average farm price per pound	Year	Production	Stocks Oct. 1, green, weight [3]	Total supply	Disappearance, beginning Oct. 1	Season average farm price per pound
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*	*Cents*		*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Cents*
SOUTHERN WISCONSIN, TYPE 54											
1929	29.7	68.8	98.5	28.9	13.4	1932	25.0	98.6	123.6	25.6	3.3
1930	31.8	69.6	101.4	19.4	9.8	1933	10.2	98.0	108.2	-------	------------
1931	31.0	82.0	113.0	14.4	5.6						
NORTHERN WISCONSIN, TYPE 55											
1929	20.2	46.3	66.5	21.9	17.3	1932	11.9	61.2	73.1	8.6	3.6
1930	24.0	44.6	68.6	10.8	10.3	1933	5.0	64.5	69.5	-------	------------
1931	20.0	57.8	77.8	16.6	5.1						
CONNECTICUT VALLEY SHADE-GROWN, TYPE 61											
1919	5.8	7.0	12.8	6.4	105.0	1927	6.4	8.0	14.4	6.1	105.0
1920	5.4	6.4	11.8	2.4	100.0	1928	6.9	8.3	15.2	7.3	93.0
1921	7.5	9.4	16.9	7.7	95.0	1929	10.2	7.9	18.1	5.7	56.0
1922	6.8	9.2	16.0	4.9	90.0	1930	7.7	12.4	20.1	6.8	73.0
1923	9.6	11.1	20.7	8.8	100.0	1931	5.3	13.3	18.6	5.3	82.0
1924	7.4	11.9	19.3	6.6	85.0	1932	4.5	13.3	17.8	4.7	59.0
1925	4.8	12.7	17.5	9.7	100.0	1933	4.9	13.1	18.0	-------	------------
1926	5.3	7.8	13.1	5.1	97.8						
GEORGIA AND FLORIDA SHADE-GROWN, TYPE 62											
1929	4.4	6.0	10.4	3.0	55.0	1932	2.4	6.4	8.8	3.0	35.0
1930	3.8	7.4	11.2	4.8	60.0	1933	1.2	5.8	7.0	-------	------------
1931	3.1	6.5	9.6	3.2	30.0						
MISCELLANEOUS DOMESTIC, TYPE 70 [13]											
1919	5.8	7.8	13.6	2.9	20.8	1927	1.0	1.2	2.2	1.0	19.2
1920	4.1	10.7	14.8	4.1	18.2	1928	1.2	1.2	2.4	(14)	18.0
1921	1.9	10.7	12.6	4.9	23.6	1929	2.4	2.6	5.0	1.8	9.6
1922	2.6	7.7	10.3	6.4	27.4	1930	.9	3.2	4.1	1.4	13.0
1923	2.2	3.9	6.1	3.3	32.0	1931	1.2	2.9	4.1	1.7	9.7
1924	1.3	2.8	4.1	1.9	24.8	1932	.5	2.4	2.9	.6	12.3
1925	.9	2.2	3.1	1.5	27.9	1933	.3	2.3	2.6	-------	------------
1926	.7	1.6	2.3	1.1	16.6						

[1] Production and price data, 1919–29, revised May 1932.
[2] Stocks as of July 1 and disappearance beginning July 1.
[3] Calculated by converting stemmed to unstemmed and storage weight to green, or farmers' sales weight, by allowing for normal losses of moisture and stem.
[4] Type 22.
[5] Type 23.
[6] Stocks as of Jan. 1 of year following production, and disappearance beginning Jan. 1 of year following production.
[7] Previous to 1929 tobacco stocks reports included Pennsylvania and New York. Pennsylvania is believed to refer entirely to type 41. New York is believed to include type 53 produced both in New York and Pennsylvania.
[8] Type 45.
[9] Type 62.
[10] Includes primed Havana seed, which has not been reported separately since 1929.
[11] Type 54.
[12] Type 55.
[13] Includes Eastern Ohio and Perique. For years 1920–24 Round Tip also included. The stocks for earlier years probably include some other tobacco not reported separately as to type.
[14] Tobacco stock classification changed in 1929, increasing miscellaneous stocks, so that 1928 disappearance cannot be made comparable.

Bureau of Agricultural Economics; stocks prior to 1929 compiled from reports of the Bureau of the Census.

TABLE 158.—*Tobacco: Stocks in hands of dealers and manufacturers, first of each quarter, 1929–33* [1]

Type and year	Jan. 1	Apr. 1	July 1	Oct. 1
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Flue-cured, types 11, 12, 13, and 14:				
1929	766, 370	703, 396	589, 978	669, 070
1930	795, 484	707, 149	599, 262	687, 769
1931	868, 983	831, 347	676, 752	739, 356
1932	893, 098	845, 642	795, 207	720, 508
1933	769, 497	680, 280	578, 157	605, 710
Virginia fire-cured, type 21:				
1929	47, 633	49, 092	38, 216	31, 268
1930	34, 997	40, 021	35, 625	27, 917
1931	33, 392	38, 364	33, 241	28, 607
1932	30, 352	40, 711	36, 243	32, 216
1933	31, 369	35, 820	31, 514	26, 906
Kentucky and Tennessee fire-cured, type 22 (eastern district):				
1929	(2)	109, 129	108, 319	83, 177
1930	79, 385	125, 173	121, 954	87, 589
1931	79, 263	122, 148	121, 372	102, 121
1932	83, 561	115, 379	128, 965	119, 480
1933	113, 210	143, 790	148, 311	138, 565
Kentucky and Tennessee fire-cured, type 23 (western district):				
1929	(2)	31, 291	25, 400	20, 954
1930	27, 475	33, 450	24, 901	19, 467
1931	21, 288	32, 256	34, 174	27, 228
1932	28, 295	40, 100	48, 014	39, 046
1933	39, 734	54, 444	48, 057	26, 962
Henderson fire-cured (stemming), type 24:				
1929	3, 446	2, 859	1, 288	711
1930	2, 794	5, 089	2, 291	736
1931	3, 788	8, 519	4, 212	3, 102
1932	3, 183	5, 234	5, 186	4, 147
1933	3, 109	8, 335	5, 605	4, 006
Burley, type 31:				
1929	354, 772	465, 941	396, 541	332, 382
1930	352, 803	506, 378	438, 659	373, 032
1931	407, 557	568, 010	500, 042	436, 802
1932	490, 614	702, 834	651, 166	586, 560
1933	619, 690	744, 164	677, 589	615, 930
Southern Maryland, type 32:				
1929	20, 245	13, 134	13, 293	18, 982
1930	15, 304	11, 960	9, 553	17, 167
1931	17, 038	14, 615	11, 756	22, 109
1932	20, 998	19, 559	21, 677	30, 670
1933	31, 325	29, 247	28, 444	40, 488
One-sucker, type 35:				
1929	28, 067	37, 666	26, 496	21, 374
1930	29, 852	38, 218	30, 283	25, 123
1931	29, 180	48, 357	41, 026	32, 324
1932	31, 680	45, 106	37, 495	33, 715
1933	34, 054	40, 941	36, 677	30, 461
Green River, type 36:				
1929	41, 122	35, 968	35, 670	30, 756
1930	30, 824	35, 618	28, 533	23, 786
1931	27, 369	29, 308	26, 136	24, 242
1932	26, 953	38, 957	36, 952	36, 305
1933	33, 791	44, 006	41, 508	36, 574
Virginia sun-cured, type 37:				
1929	4, 422	7, 915	6, 073	5, 492
1930	4, 941	5, 820	4, 935	3, 878
1931	3, 855	4, 709	4, 142	3, 455
1932	3, 174	4, 635	4, 207	3, 358
1933	3, 397	3, 606	3, 228	3, 241
Pennsylvania seed, leaf, type 41:				
1929	70, 370	115, 639	93, 861	83, 306
1930	73, 186	93, 795	90, 292	79, 592
1931	68, 790	80, 387	83, 011	74, 200
1932	66, 310	115, 064	114, 702	107, 683
1933	98, 777	99, 956	99, 048	99, 312
Ohio cigar leaf (Miami Valley), types 42, 43, and 44:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1929	38, 868	55, 392	47, 094	39, 888
1930	34, 502	41, 448	42, 282	36, 427
1931	30, 502	54, 389	58, 455	54, 186
1932	48, 572	55, 605	61, 424	57, 762
1933	56, 339	57, 463	57, 326	54, 623
Georgia and Florida sun-grown, type 45:				
1929	(3)	1, 174	803	2, 078
1930	1, 538	1, 319	1, 340	2, 345
1931	2, 033	2, 223	1, 530	2, 419
1932	2, 097	2, 188	2, 277	2, 025
1933	2, 063	1, 938	1, 839	1, 722
Puerto Rico cigar leaf, type 46:				
1929	22, 230	26, 128	25, 142	25, 270
1930	29, 039	28, 442	24, 734	23, 510
1931	27, 284	27, 932	24, 940	23, 546
1932	26, 415	25, 647	23, 470	20, 336
1933	19, 668	19, 318	18, 732	17, 831
Conn. Valley Broadleaf, type 51:				
1929	28, 102	37, 880	34, 458	31, 016
1930	29, 507	30, 072	28, 960	24, 809
1931	23, 438	30, 758	33, 377	29, 969
1932	29, 501	36, 505	36, 783	36, 647
1933	35, 099	35, 667	38, 961	37, 450
Conn. Valley Havana seed, type 52:				
1929	38, 076	39, 946	35, 558	31, 388
1930	33, 487	43, 468	35, 732	32, 898
1931	32, 739	42, 176	38, 265	33, 442
1932	33, 849	41, 753	40, 854	37, 092
1933	35, 818	38, 643	38, 329	35, 048
New York Havana seed, type 53:				
1929	2, 054	3, 342	2, 781	2, 200
1930	2, 395	2, 811	2, 533	2, 166
1931	2, 837	3, 558	3, 644	3, 034
1932	2, 864	4, 455	4, 370	3, 881
1933	3, 335	3, 255	3, 932	3, 761
Wisconsin cigar leaf, types 54 and 55:				
1929	62, 359	97, 345	97, 380	86, 701
1930	72, 614	101, 420	97, 023	85, 274
1931	73, 291	97, 515	112, 555	105, 169
1932	95, 964	114, 686	128, 423	121, 273
1933	115, 587	117, 557	127, 225	124, 192
Conn. Valley shade grown, type 61:				
1929	8, 722	8, 749	5, 954	6, 476
1930	11, 329	10, 499	10, 207	10, 162
1931	11, 771	10, 818	10, 255	10, 863
1932	10, 908	11, 504	10, 720	10, 902
1933	11, 300	10, 865	10, 452	10, 730
Georgia and Florida shade, type 62:				
1929	(3)	3, 844	3, 564	4, 824
1930	5, 048	4, 950	3, 968	5, 921
1931	5, 165	4, 428	4, 110	5, 197
1932	4, 825	4, 407	3, 616	5, 162
1933	4, 799	4, 218	3, 923	4, 634
Miscellaneous, domestic type 70:				
1929	1, 674	5, 928	3, 122	2, 302
1930	1, 989	4, 105	2, 932	2, 918
1931	2, 723	2, 973	2, 843	2, 573
1932	2, 864	2, 927	2, 551	2, 182
1933	2, 262	2, 095	2, 043	2, 065

[1] Storage order basis, including some tobacco which has been stemmed.
[2] January 1929 stocks of types 22 and 23 combined totaled 105,902,000 pounds.
[3] January 1929 stocks of types 45 and 62 combined totaled 5,994,000 pounds.

Bureau of Agricultural Economics.

TABLE 159.—*Leaf tobacco used in manufacturing cigars, cigarettes, and tobacco and snuff, calendar years 1922–32* [1]

Year	Cigars		Cigarettes		Tobacco and snuff	Total
	Large	Small	Large	Small		
	Pounds	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*
1922	149, 363, 275	2, 345, 976	142, 044	169, 455, 096	325, 509, 608	646, 815, 999
1923	157, 837, 176	1, 915, 384	156, 436	200, 238, 245	328, 888, 700	689, 035, 941
1924	151, 356, 058	2, 056, 784	137, 929	217, 562, 385	322, 745, 284	693, 858, 440
1925	147, 530, 760	1, 470, 374	144, 962	244, 170, 315	325, 109, 202	718, 425, 613
1926	151, 049, 170	1, 322, 339	108, 497	267, 475, 086	317, 399, 077	737, 354, 169
1927	151, 049, 265	1, 460, 667	95, 961	290, 368, 023	301, 314, 291	744, 288, 207
1928	149, 993, 168	1, 296, 722	87, 632	310, 070, 927	293, 176, 363	754, 624, 812
1929	150, 878, 378	1, 250, 740	92, 788	346, 450, 363	297, 953, 440	796, 625, 709
1930	136, 749, 916	1, 151, 057	65, 333	347, 849, 455	293, 990, 441	779, 806, 202
1931	126, 611, 200	1, 016, 997	43, 171	329, 919, 304	294, 812, 985	752, 403, 657
1932	103, 233, 757	1, 054, 270	18, 347	299, 010, 925	286, 816, 510	690, 133, 809

[1] The quantities given are unstemmed equivalent of all kinds of tobacco used. Stemmed leaf and scraps, etc., used in manufacturing have been converted to unstemmed equivalent at the ratio of 3 pounds stemmed to 4 pounds unstemmed; in respect to leaf used in the manufacture of tobacco and snuff, prior to 1928 no conversion factor was used but in this table all figures are compiled on the conversion basis named.

Bureau of Internal Revenue.

TABLE 160.—*Production of manufactured tobacco, snuff, cigars, and cigarettes, calendar years 1922–32*

Year	Plug	Twist	Fine cut	Scrap [1] chewing	Smoking [1]	Snuff	Total
	Pounds	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*
1922	120, 174, 363	10, 947, 547	6, 892, 417		243, 355, 372	38, 136, 406	419, 506, 105
1923	120, 798, 439	10, 665, 185	7, 140, 828		234, 944, 139	39, 228, 284	412, 776, 875
1924	111, 477, 092	9, 901, 542	6, 780, 581		246, 990, 137	39, 029, 026	414, 178, 378
1925	111, 390, 766	9, 749, 836	7, 151, 246		247, 739, 899	37, 841, 222	413, 872, 969
1926	109, 766, 342	9, 179, 089	6, 984, 728		246, 438, 832	38, 226, 725	410, 595, 716
1927	103, 918, 416	7, 988, 281	6, 286, 483		237, 933, 677	40, 197, 123	396, 323, 980
1928	100, 646, 047	8, 891, 640	5, 186, 304		231, 134, 105	40, 475, 382	386, 333, 478
1929	96, 744, 046	8, 187, 608	5, 555, 620		229, 585, 163	41, 127, 453	381, 199, 890
1930	86, 273, 517	7, 623, 716	5, 089, 410		232, 013, 383	40, 765, 883	371, 765, 909
1931	76, 652, 810	6, 377, 436	4, 170, 255	61, 235, 195	182, 947, 238	39, 854, 345	371, 237, 299
1932	61, 945, 173	4, 918, 034	3, 354, 471	50, 080, 201	190, 986, 528	35, 994, 337	347, 278, 744

Year	Cigars [2]		Cigarettes	
	Weighing more than 3 pounds per 1,000	Weighing not more than 3 pounds per 1,000	Weighing more than 3 pounds per 1,000	Weighing not more than 3 pounds per 1,000
	Number	*Number*	*Number*	*Number*
1922	6, 722, 354, 177	632, 906, 635	17, 450, 456	55, 763, 022, 618
1923	6, 950, 247, 389	505, 305, 490	18, 065, 858	66, 715, 830, 430
1924	6, 597, 676, 535	530, 714, 332	16, 054, 285	72, 708, 989, 025
1925	6, 463, 193, 108	144, 089, 170	17, 428, 807	82, 247, 100, 347
1926	6, 498, 641, 233	412, 314, 795	13, 239, 765	92, 096, 973, 926
1927	6, 519, 004, 960	439, 419, 390	11, 432, 360	99, 809, 031, 619
1928	6, 373, 181, 751	415, 535, 410	10, 403, 004	108, 705, 505, 650
1929	6, 518, 533, 042	419, 880, 335	9, 952, 480	122, 392, 380, 846
1930	5, 893, 890, 418	383, 069, 980	7, 366, 925	123, 802, 186, 217
1931	5, 347, 921, 293	338, 996, 780	5, 159, 660	117, 064, 214, 494
1932	4, 382, 722, 918	278, 748, 580	3, 373, 577	106, 632, 433, 834

[1] Prior to 1931, scrap chewing was included with smoking tobacco.
[2] Cigars produced in and removed for domestic consumption from bonded manufacturing warehouses are not included.

Bureau of Internal Revenue.

TABLE 161.—*Tobacco, unmanufactured: International trade, average 1925–29, annual 1930–32*

Country	Calendar year							
	Average, 1925–29		1930		1931		1932 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
United States	525,232	78,243	579,704	71,543	524,472	74,452	411,159	56,905
Dutch East Indies	170,071	11,967	171,582	13,782	178,565	7,870	[2] 131,214	[2] 10,567
Greece	109,224	[3] 40	108,455	----------	94,897	----------	77,827	----------
Turkey	78,023	0	72,201	0	48,969	0	----------	0
Brazil	67,864	3,869	80,949	3,733	83,264	2,251	59,189	1,529
Bulgaria	57,616	0	49,499	0	54,205	0	45,177	0
Philippine Islands	47,940	674	50,279	412	53,691	790	50,521	1,870
Cuba	42,279	0	58,791	0	40,294	0	----------	0
British India	40,432	16,192	38,835	12,417	33,925	8,620	21,921	4,206
Dominican Republic	36,528	0	28,594	0	15,011	0	9,779	0
Algeria	33,841	10,374	25,932	12,495	30,551	9,304	24,814	12,300
Paraguay	14,252	[4] 162	6,601	0	20,794	0	13,958	0
Hungary	12,392	7,393	23,229	6,977	20,624	6,605	26,741	1,272
Russia	9,873	0	20,086	0	6,389	0	6,938	0
Yugoslavia	4,994	766	2,659	602	6,490	454	12,821	369
Ceylon	2,243	70	1,294	555	2,584	872	1,622	----------
Total	1,252,804	129,750	1,318,690	122,516	1,214,725	111,218	893,681	89,018
PRINCIPAL IMPORTING COUNTRIES								
Germany	679	217,778	1,997	234,658	657	158,258	548	179,057
United Kingdom	6,211	202,589	8,336	223,493	8,804	185,997	13,358	166,418
China	24,737	104,548	15,859	124,349	18,754	165,609	13,111	79,757
France	403	92,321	1,483	154,960	1,129	111,876	1,969	106,583
Netherlands	3,115	70,090	3,260	70,564	4,388	74,524	4,228	71,925
Spain	37	53,921	0	57,070	0	65,419	0	88,211
Belgium	82	45,005	364	49,239	685	49,846	551	45,703
Czechoslovakia	7	38,996	0	21,966	0	22,800	0	22,280
Poland	723	33,809	227	42,342	131	22,432	92	18,792
Austria	2,111	31,367	2,670	22,048	2,349	29,174	1,753	23,976
Argentina	417	23,945	1,042	22,878	599	26,538	627	13,758
Australia [5]	7	21,622	0	20,284	0	22,393	0	15,119
Canada	5,467	17,058	5,372	17,435	6,706	14,323	11,197	10,262
Egypt	0	16,639	0	15,805	0	13,688	0	12,548
Italy	7,333	16,165	7,285	12,033	9,301	6,004	7,916	8,833
Switzerland	92	13,166	456	16,573	405	16,692	304	16,097
Japan	2,952	12,832	3,295	10,043	1,766	16,080	1,415	8,321
Sweden	166	12,099	160	10,415	182	12,849	153	9,730
Denmark	2	11,835	0	14,497	0	13,481	21	14,565
Irish Free State	269	8,934	344	12,462	314	11,307	----------	6,727
Finland	0	7,094	0	10,286	0	4,665	0	5,079
Norway	0	5,037	0	5,457	0	6,665	0	5,040
Total	54,810	1,056,850	52,150	1,168,857	56,170	1,050,620	57,243	928,781

[1] Preliminary.
[2] Java and Madura only.
[3] 3-year average.
[4] 2-year average.
[5] Year ended June 30.

Bureau of Agricultural Economics; official sources.
Tobacco comprises leaf, stems, and strippings, but not snuff.

TABLE 162.—*Exports of tobacco*[1] *from the United States to principal importing countries, 1924–33*

Importing countries	Calendar year									
	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
FLUE-CURED, TYPES 11, 12, 13, AND 14										
United Kingdom	121, 040	131, 034	125, 964	166, 655	162, 329	199, 632	180, 380	145, 309	11, 899	165, 717
China	58, 509	78, 824	82, 669	45, 386	159, 664	99, 455	108, 913	148, 634	68, 565	69, 340
Australia	17, 093	19, 638	20, 843	17, 247	20, 050	18, 488	26, 248	14, 924	11, 938	5, 813
Canada	11, 167	9, 445	13, 517	13, 037	13, 440	13, 263	12, 964	11, 366	8, 832	8, 376
Germany	16, 743	5, 988	12, 385	12, 809	16, 327	6, 558	10, 946	7, 864	7, 935	4, 554
Other countries	40, 963	33, 350	31, 957	47, 291	63, 088	73, 440	58, 244	60, 155	146, 142	44, 140
Total	265, 515	278, 279	287, 335	302, 425	434, 898	410, 836	397, 695	388, 252	255, 311	297, 940
VIRGINIA FIRE-CURED, TYPE 21										
United Kingdom	6, 483	4, 889	3, 626	1, 357	1, 234	1, 923	2, 324	1, 413	1, 824	554
Germany	3, 585	3, 621	3, 571	5, 493	2, 966	2, 085	2, 588	1, 879	1, 943	1, 450
Netherlands	2, 726	2, 971	2, 810	2, 807	1, 164	839	1, 025	1, 255	2, 147	1, 067
Australia	3, 144	2, 912	2, 480	2, 336	780	775	2, 015	689	522	326
China	3, 947	399	70	1, 774	111	179	107	----	----	----
Norway	2, 285	1, 506	1, 880	2, 020	2, 657	1, 648	1, 881	1, 265	1, 442	1, 742
Belgium	655	101	528	1, 295	1, 693	2, 055	317	668	1, 844	1, 550
Canada	1, 828	363	20	283	356	152	177	93	54	60
France	313	232	514	1, 631	1, 240	1, 699	650	150	----	----
Other countries	6, 104	3, 349	2, 891	5, 281	6, 494	12, 767	4, 295	4, 018	4, 594	5, 187
Total	31, 070	20, 343	18, 390	24, 277	18, 695	24, 122	15, 379	11, 430	14, 370	11, 936
KENTUCKY AND TENNESSEE FIRE-CURED, TYPES 22, 23, AND 24										
United Kingdom	17, 925	22, 023	15, 734	9, 149	6, 547	7, 271	6, 288	5, 579	4, 749	4, 725
Spain	31, 104	15, 025	1, 479	19, 423	13, 292	1, 966	1, 047	2, 463	9, 493	15, 854
France	33, 527	12, 253	32, 823	20, 769	13, 465	15, 582	37, 516	18, 494	31, 274	21, 365
Germany	17, 805	11, 471	10, 453	10, 027	9, 280	10, 916	8, 810	8, 091	7, 289	6, 272
Italy	15, 508	10, 212	4, 066	385	650	2, 587	3, 165	3, 228	694	649
Netherlands	13, 852	9, 071	13, 611	8, 039	8, 962	11, 167	13, 345	7, 507	2, 948	3, 438
Belgium	12, 858	6, 639	14, 411	13, 956	6, 079	5, 286	6, 795	8, 025	9, 510	8, 537
Other countries	27, 649	30, 280	27, 270	30, 260	25, 739	25, 002	28, 474	14, 584	13, 436	15, 734
Total	170, 228	116, 974	119, 847	112, 008	84, 014	79, 777	105, 440	67, 971	79, 393	76, 574
BURLEY, TYPE 31										
Belgium	1, 045	2, 295	3, 450	5, 697	1, 924	1, 483	3, 867	3, 073	5, 034	3, 708
France	1, 096	0	413	229	149	8	16	471	326	243
Portugal	1, 396	1, 248	1, 094	2, 362	1, 238	1, 433	2, 746	1, 635	1, 813	1, 482
Netherlands	795	200	136	3, 332	60	151	156	382	1, 171	1, 368
Germany	443	33	197	1, 618	185	103	209	387	763	388
Other countries	2, 623	2, 241	1, 439	4, 606	2, 988	2, 158	2, 630	2, 971	3, 235	3, 422
Total	7, 398	6, 017	6, 729	17, 844	6, 544	5, 336	9, 624	8, 919	12, 342	10, 611
MARYLAND, TYPE 32, AND OHIO EXPORT										
France	6, 196	6, 404	5, 514	8, 957	3, 547	6, 016	3, 253	3, 788	3, 750	2, 066
Netherlands	3, 663	2, 947	4, 595	5, 317	3, 328	1, 435	1, 080	546	2, 441	2, 763
Belgium	618	1, 693	528	885	694	642	1, 039	597	1, 120	1, 270
Germany	591	297	674	942	426	492	185	115	226	608
Switzerland	365	581	946	1, 369	1, 487	1, 788	1, 700	1, 903	1, 445	1, 899
Other countries	1, 398	1, 991	1, 335	2, 566	1, 465	1, 204	2, 464	600	1, 187	580
Total	12, 831	13, 913	13, 592	20, 036	10, 947	11, 577	9, 721	7, 549	10, 169	9, 186
ONE-SUCKER, TYPE 35										
Belgium	----	----	----	1, 588	921	208	790	981	299	640
British West Africa	----	----	----	2, 087	1, 694	2, 370	1, 154	89	367	188
Other countries	----	----	----	2, 695	612	635	845	407	331	288
Total	----	----	----	6, 370	3, 227	3, 213	2, 789	1, 477	997	1, 116

[1] On a dry-weight basis, including some tobacco which has been stemmed.

TABLE 162.—*Exports of tobacco from the United States to principal importing countries, 1924–33*—Continued

GREEN RIVER, TYPE 36

Importing countries	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
United Kingdom	6, 093	9, 018	3, 638	4, 615	2, 401	5, 434	4, 117	4, 205	2, 727	1, 404
British West Africa	446	2, 798	3, 122	1, 347	817	1, 044	310	89	368	360
China	2, 568	2, 286	2, 663	1, 025	214	540	455			
Belgium	2, 097	700	1, 491	900	698	594	1, 177	475	579	409
Other countries	4, 881	3, 169	3, 162	4, 942	4, 238	2, 750	1, 860	578	715	369
Total	16, 085	17, 971	14, 076	12, 829	8, 368	10, 362	7, 919	5, 347	4, 389	2, 542

BLACK FAT AND DARK AFRICAN, CONSISTING PRINCIPALLY OF ONE-SUCKER

Importing countries	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
British Guiana				65	132	74	240	194	222	231
British West Africa				252	608	2, 179	4, 390	4, 634	5, 552	4, 352
French Africa				107	356	2, 331	2, 059	2, 480	2, 685	2, 064
Other countries				195	404	1, 071	1, 385	1, 365	1, 518	1, 931
Total				619	1, 500	5, 655	8, 074	8, 673	9, 977	8, 578

CIGAR-LEAF TYPES

Importing countries	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
Netherlands	1, 006	55	101	68	14	86	94	169	48	765
Canada	193	331	142	203	310	333	292	239	130	54
Philippine Islands	126	309	263	217	242	321	188	230	297	432
France	0	0	0	0	0	3, 465	3, 384	2, 997	195	
Other countries	139	188	113	43	96	204	195	159	26	643
Total	1, 464	883	619	531	662	4, 409	4, 153	3, 794	696	1, 894

TOTAL EXPORTS, ALL TYPES

Importing countries	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
United Kingdom	159, 697	171, 115	149, 720	182, 542	173, 671	214, 598	193, 816	157, 506	121, 901	174, 765
China	72, 013	82, 598	85, 792	51, 359	160, 391	100, 675	109, 504	161, 340	74, 781	69, 369
Germany	44, 165	21, 587	27, 854	31, 387	30, 164	20, 461	23, 044	20, 443	29, 175	13, 803
Italy	16, 846	11, 263	5, 814	3, 262	1, 817	3, 368	3, 881	4, 085	2, 224	1, 660
France	41, 803	21, 723	49, 573	38, 082	21, 447	35, 840	56, 517	29, 655	36, 602	24, 695
Belgium	24, 442	14, 255	21, 592	26, 293	15, 679	13, 752	16, 609	17, 414	22, 869	19, 518
Netherlands	41, 625	20, 803	29, 566	27, 483	23, 788	21, 731	23, 273	19, 209	16, 519	17, 268
Australia	20, 652	22, 577	23, 356	19, 812	21, 167	19, 915	28, 739	15, 756	12, 837	6, 710
Spain	31, 931	15, 031	1, 483	20, 829	17, 036	12, 929	1, 058	5, 990	10, 370	15, 871
Canada	15, 708	11, 956	15, 508	15, 394	16, 097	14, 511	14, 146	12, 425	9, 429	8, 771
Other countries	77, 673	75, 563	68, 515	89, 809	94, 155	97, 567	90, 371	80, 649	74, 452	67, 988
Total	546, 555	468, 471	478, 773	506, 252	575, 412	555, 347	560, 958	524, 472	411, 159	420, 418

Bureau of Agricultural Economics; compiled from Foreign Commerce and Navigation of the United States and official records of the Bureau of Foreign and Domestic Commerce.

TABLE 163.—*Reexports of tobacco from the United States, 1923–32*

Calendar year	Leaf: Cigar wrapper	Leaf: Other	Manufactured: Cigarettes	Manufactured: Cigars and cheroots	Manufactured: Other	Calendar year	Leaf: Cigar wrapper	Leaf: Other	Manufactured: Cigarettes	Manufactured: Cigars and cheroots	Manufactured: Other
	Pounds	*Pounds*	*Pounds*	*Pounds*	*Pounds*		*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*
1923	413, 466	3, 202, 937	171	1, 039	223, 688	1928	213, 314	2, 178, 539	3, 050	55	165, 884
1924	541, 520	4, 307, 654	475	8, 039	50, 992	1929	268, 905	4, 934, 744	500	11, 720	34, 468
1925	671, 667	1, 483, 795	478	1, 433	256, 453	1930	809, 097	1, 501, 507		3, 895	15, 702
1926	460, 567	698, 515	1, 120	511	43, 209	1931	228, 460	343, 306	2, 964	571	15, 136
1927	330, 826	1, 160, 033	7, 808	86	79, 306	1932	436, 673	311, 942	(1)	(1)	[1] 15, 816

[1] Reported as total tobacco manufactured.

Bureau of Agriculturel Economics; compiled from Foreign Commerce and Navigation of the United States and Monthly Summary of Foreign Commerce of the United States.

TABLE 164.—*Imports of leaf tobacco by the United States from foreign countries and shipments from possessions, 1924–33*

Product and country from which imported	Calendar year									
	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Cigar wrapper:										
Netherlands	5,821	6,261	6,323	5,664	6,498	8,460	3,758	4,694	1,992	1,941
Other countires	73	174	228	120	133	103	100	51	514	130
Total	5,894	6,435	6,551	5,784	6,631	8,563	3,858	4,745	2,506	2,071
Other cigar leaf:										
Philippine Islands	1,231	1,166	908	1,611	3,727	3,963	4,680	4,144	3,560	1,627
Cuba	19,040	21,133	22,562	23,254	21,869	22,237	19,656	16,228	10,639	10,706
Puerto Rico	16,370	20,358	27,261	24,047	17,575	22,303	19,193	16,565	5,698	15,255
Other countries	3,591	163	110	288	13	20	58	8	4	8
Total	40,232	42,820	50,841	49,200	43,184	48,523	43,587	36,945	19,901	27,596
Cigarette leaf:										
Bulgaria	1,296	347	499	78	46			15	7	
Germany	1,751	892	729	896	885	412	113	49	213	2
Greece	20,748	22,958	13,704	29,909	13,152	17,340	15,562	19,698	15,058	13,013
Italy	5,183	10,312	10,764	17,570	10,280	8,894	9,811	11,967	11,164	7,178
Turkey	6,995	12,085	9,812	20,957	15,624	4,162	14,280	11,409	8,136	16,323
Other countries	992	431	651	410	348	196	106	364	1,274	1,235
Total	36,965	47,025	36,159	69,820	40,335	31,004	39,872	43,502	35,852	37,751
Scrap and other unmanufactured	6,466	6,749	6,231	8,813	10,413	10,433	9,173	11,160	9,048	2,596

Bureau of Agricultural Economics; compiled from Foreign Commerce and Navigation of the United States and Monthly Summary of Foreign Commerce of the United States.

TABLE 165.—*Imports of manufactured tobacco products by the United States from foreign countries and shipments from possessions, calendar years 1924–33*

Product and country from which imported	1924	1925	1926	1927	1928
Cigarettes:					
Philippine Islands ... pounds	1,353	2,258	38,311	36,643	25,229
Puerto Rico ... thousands	11,295	2,850	4,625	5,227	5,368
Other countries ... pounds	(1)	(1)	(1)	(1)	(1)
Cigars and cheroots:					
Philippine Islands ... do	3,158,205	3,225,868	3,021,298	2,645,177	2,574,138
Puerto Rico ... thousands	175,075	207,110	177,501	147,555	153,590
Other countries ... pounds	409,924	517,442	424,327	413,077	390,271
All other manufactures ... do	324,299	255,398	374,679	402,747	274,249

Product and country from which imported	1929	1930	1931	1932	1933
Cigarettes:					
Philippine Islands ... pounds	16,546	6,246	9,523	2,627	19,238
Puerto Rico ... thousands	4,730	17,767	11,670	4,431	3,933
Other countries ... pounds	(1)	(1)	(1)	(1)	(1)
Cigars and cheroots:					
Philippine Islands ... do	2,073,116	1,900,864	2,055,810	2,191,861	1,823,933
Puerto Rico ... thousands	144,967	157,877	162,208	76,266	63,715
Other countries ... pounds	380,530	280,195	216,934	41,654	
All other manufactures ... do	211,463	220,567	176,102	156,872	135,955

1 Included in "All other manufactures."

Bureau of Agricultural Economics; compiled from Foreign Commerce and Navigation of the United States and Monthly Summary of Foreign Commerce of the United States.

STATISTICS OF FRUITS AND VEGETABLES

TABLE 166.—*Almonds: Production and average price per ton received by producers, California, 1924–33*

Item	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933 [1]
Production..short tons..	8,000	7,500	16,000	12,000	14,000	4,700	13,500	14,800	14,000	12,900
Price..........dollars..	300	400	300	320	340	480	200	176	165	186
Farm value, basis average price....1,000 dol..	2,400	3,000	4,800	3,840	4,760	2,256	2,700	2,605	2,310	2,399

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 167.—*Apples: Production, car-lot shipments, prices, and foreign trade, United States, 1919–33*

Year	Production		Weighted average price per bushel received by producers	Car-lot shipments from crop of year shown		Foreign trade, year beginning July [3] [4]						
						Domestic exports				Imports, fresh and dried in terms of fresh	Net exports [5]	
	Total	Commercial [1]		Cars	Equivalent bushels [2]	Fresh	Dried	Dried in terms of fresh	Canned in terms of fresh		Total	Percentage of production
	1,000 bushels	*1,000 bushels*	*Dollars*	*Number*	*1,000 bushels*	*1,000 bushels*	*1,000 pounds*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Percent*
1919	*136,561*											
1919	140,786	78,477	1.75	-------	-------	3,152	11,819	1,231	--------	849	3,534	2.5
1920	207,313	101,715	1.22	116,117	69,670	7,995	18,053	1,881	--------	142	9,734	4.7
1921	95,478	64,671	1.64	89,559	53,735	3,282	12,431	1,295	--------	1,353	3,224	3.4
1922	189,776	95,835	1.02	113,961	68,377	5,269	12,817	1,335	--------	189	6,415	3.4
1923	180,968	107,808	1.13	138,184	84,405	12,295	30,410	3,168	--------	132	15,331	8.5
1924	*152,967*											
1924	160,049	84,039	1.21	103,843	61,763	9,604	19,225	2,002	562	106	12,062	7.6
1925	151,752	99,738	1.25	127,804	77,885	11,015	24,833	2,587	538	74	14,066	9.2
1926	227,043	117,384	.89	133,550	80,800	21,293	32,670	3,403	675	84	25,287	11.1
1927	115,625	78,051	1.40	93,094	58,375	9,430	21,704	2,261	573	154	12,110	10.4
1928	176,721	106,383	1.08	127,530	80,151	21,043	50,024	5,211	1,151	117	27,288	15.4
1929	*126,433*											
1929	133,318	86,664	1.39	102,801	63,974	10,279	23,769	2,476	836	309	13,282	10.0
1930	153,324	100,587	1.02	109,794	71,475	20,341	38,121	3,971	640	103	24,849	16.2
1931	202,415	103,776	.65	101,731	63,070	18,030	31,557	3,287	695	82	21,930	10.8
1932	[6] 140,775	85,776	.62	77,420	49,947	13,754	36,601	3,813	748	6	18,309	13.0
1933 [7]	143,827	77,232	.72	[8] 62,139	40,044	-------	-------	-------	--------	-------	-------	------

[1] Included in "Total crop." By commercial crop is meant that portion of the total crop which is sold for consumption as fresh fruit.

[2] For years 1920–22, it is assumed that the car lots averaged 600 bushels per car. For years 1923 to 1933, inclusive, the estimates of bushels shipped have been calculated according to estimated loadings in each State.

[3] Compiled from Monthly Summary of Foreign Commerce of the United States, June issues, 1919–26; January and June issues, 1927–33; and official records of the Bureau of Foreign and Domestic Commerce.

[4] Dried and canned are converted to terms of fresh apples on following bases: 1 pound of dried is equivalent to about 5 pounds fresh; 1 pound of canned is equivalent to about 2 pounds fresh; 48 pounds fresh equal 1 bushel. No reexports reported.

[5] Total exports (domestic plus foreign) minus imports.

[6] Includes 220,000 bushels not harvested on account of market conditions.

[7] Preliminary.

[8] December forecast of total shipments from 1933 crop.

Bureau of Agricultural Economics; production figures are estimates of the Crop Reporting Board, revised, 1919–28.

See introductory text; italic figures are census returns. Prices to producers are based upon returns from crop reporters.

TABLE 168.—*Apples: Production and weighted average price per bushel received by producers, by States, average 1926–30, annual 1932 and 1933*

State and division	Production						Price for crop of—	
	Total			Commercial [1]				
	Average, 1926–30	1932	1933 [2]	Average, 1926–30	1932	1933 [2]	1932	1933 [3]
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Cents*	*Cents*
Maine	1,796	2,575	1,884	1,291	1,392	1,017	60	67
New Hampshire	1,000	950	1,131	672	675	849	75	72
Vermont	764	1,090	1,027	498	729	675	82	95
Massachusetts	3,003	3,525	3,486	2,078	2,502	2,490	69	73
Rhode Island	340	375	350	196	246	231	72	85
Connecticut	1,189	1,420	1,184	762	981	855	84	95
New York	19,375	22,197	16,060	12,949	13,650	9,600	59	79
New Jersey	3,396	3,640	3,380	2,224	2,352	2,145	89	91
Pennsylvania	9,361	9,537	7,293	3,498	3,750	2,154	62	87
North Atlantic	40,225	45,309	35,795	24,168	26,277	20,016	64.7	81.4
Ohio	6,212	5,145	4,380	1,645	1,524	1,260	64	92
Indiana	1,995	871	819	440	234	234	76	97
Illinois	4,521	2,300	2,112	2,963	1,650	1,518	80	95
Michigan	5,910	5,800	8,651	3,345	3,189	5,184	65	68
Wisconsin	1,714	1,914	1,938	364	396	408	64	76
Minnesota	993	660	960	104	66	99	79	70
Iowa	1,754	1,827	1,425	278	321	255	72	91
Missouri	2,210	928	3,132	1,180	501	1,620	93	71
South Dakota	173	192	68				83	129
Nebraska	564	627	370	191	285	168	63	98
Kansas	1,194	546	1,431	808	360	939	97	84
North Central	27,239	20,810	25,286	11,318	8,526	11,685	70.0	79.2
Delaware	1,381	1,096	932	1,291	726	636	69	78
Maryland	2,061	1,368	1,312	1,345	756	657	59	74
Virginia	12,671	7,830	10,900	8,160	5,889	5,400	63	59
West Virginia	6,533	4,191	4,200	4,020	2,499	2,100	62	66
North Carolina	3,406	1,825	5,254	599	357	1,011	72	67
South Carolina	323	164	279				97	96
Georgia	1,069	640	1,150	317	192	354	82	78
South Atlantic	27,444	17,114	24,027	15,732	10,419	10,158	64.8	64.9
Kentucky	2,310	720	2,340	256	90	288	81	70
Tennessee	2,146	936	2,194	194	96	228	87	88
Alabama	652	252	648				92	90
Mississippi	174	51	174				103	103
Arkansas	1,637	1,368	1,925	946	696	1,074	63	71
Louisiana	21	8	22				105	116
Oklahoma	411	387	350	56	66	60	66	78
Texas	168	135	98				92	106
South Central	7,519	3,857	7,751	1,453	948	1,650	76.0	78.7
Montana	467	562	525	331	336	264	64	78
Idaho	5,386	4,200	5,244	4,465	4,026	4,515	46	68
Wyoming	55	53	50				83	88
Colorado	2,392	2,139	1,454	2,150	2,013	1,362	42	57
New Mexico	798	726	285	563	495	168	79	115
Arizona	74	77	51	29	24		141	160
Utah	833	924	313	558	591	219	49	90
Nevada	49	49	39				88	105
Washington	32,915	30,960	29,240	27,307	23,760	21,000	53	68
Oregon	5,723	4,950	4,095	4,021	3,150	1,800	46	61
California	10,086	[4] 9,045	9,672	5,719	5,211	4,380	64	57
Western	58,779	[4] 53,685	50,968	45,143	39,606	33,708	53.8	65.7
United States	161,206	[4] 140,775	143,827	97,814	85,776	77,217	61.6	72.5

[1] Included in "Total crop." By commercial crop is meant that portion of the total crop which is sold for consumption as fresh fruit.
[2] Preliminary
[3] Average price for 6 months.
[4] Includes 220,000 bushels not harvested on account of market conditions. Prices are computed on harvested crop.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 169.—*Apples: Car-lot shipments in eastern and western areas and United States by months, 1924–25 to 1933–34*

State group, and season	Crop-movement season [1]													
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
Total eastern:	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
1924–25	175	1,601	2,165	9,017	24,490	11,195	3,082	3,031	2,596	2,323	1,423	942	230	62,270
1925–26	379	2,436	3,562	12,960	24,844	10,313	3,211	3,319	3,817	3,805	2,243	1,234	379	72,502
1926–27	165	2,271	2,035	11,728	26,133	14,232	4,358	5,110	5,422	3,675	2,279	1,295	476	79,179
1927–28	243	1,507	2,480	7,754	15,868	6,927	2,310	2,353	1,966	1,434	870	504	199	44,415
1928–29	196	1,867	2,881	11,645	23,355	8,210	3,512	3,665	2,899	2,170	1,258	766	284	62,708
1929–30	512	1,697	2,651	10,426	18,068	5,634	2,438	2,780	2,581	2,440	1,307	602	303	51,439
1930–31	388	1,915	1,732	6,194	14,370	6,990	2,820	3,161	2,715	1,857	666	357	91	43,256
1931–32	339	1,714	1,015	7,121	18,624	9,139	3,151	4,168	3,947	2,837	1,348	574	228	54,205
1932–33 [2]	231	1,101	805	4,866	11,100	4,496	1,936	2,474	2,260	1,651	996	636	281	32,833
1933–34 [2]	247	1,031	602	4,703	7,994	3,133	1,602	------	------	------	------	------	------	------
Total western:														
1924–25	30	761	961	5,624	15,376	9,036	3,317	2,263	1,427	954	872	673	279	41,573
1925–26	54	459	768	7,945	20,051	9,772	4,161	2,934	3,038	2,423	1,871	1,260	566	55,302
1926–27	95	1,569	1,352	9,222	19,188	9,019	4,007	2,859	2,598	1,673	1,317	1,060	412	54,371
1927–28	10	308	1,059	4,352	17,688	10,182	3,653	2,962	2,934	2,066	1,485	1,315	665	48,679
1928–29	34	1,585	1,449	7,760	22,546	11,564	4,797	4,109	4,850	3,248	1,686	944	250	64,822
1929–30	2	325	1,140	3,570	19,621	9,014	3,544	3,443	3,816	2,777	2,355	1,372	383	51,362
1930–31	32	1,412	1,198	7,165	22,482	10,761	5,415	4,787	4,521	3,896	2,430	1,714	725	66,538
1931–32	61	1,435	966	5,890	12,286	5,481	4,188	4,085	4,344	3,635	2,401	1,838	916	47,526
1932–33 [2]	44	1,509	882	3,902	12,978	6,320	4,192	3,921	3,698	3,368	1,864	1,356	553	44,587
1933–34 [2]	14	504	995	1,827	8,426	5,938	5,253	------	------	------	------	------	------	------
Total United States:														
1924–25	205	2,362	3,126	14,641	39,866	20,231	6,399	5,294	4,023	3,277	2,295	1,615	509	103,843
1925–26	433	2,895	4,330	20,905	44,895	20,085	7,372	6,253	6,855	6,228	4,114	2,494	945	127,804
1926–27	260	3,840	3,387	20,950	45,321	23,251	8,365	7,969	8,020	5,348	3,596	2,355	888	133,550
1927–28	253	1,815	3,539	12,106	33,556	17,109	5,963	5,315	4,900	3,500	2,355	1,819	864	93,094
1928–29	230	3,452	4,330	19,405	45,901	19,774	8,309	7,774	7,749	5,418	2,944	1,710	534	127,530
1929–30	514	2,022	3,791	13,996	37,689	14,648	5,982	6,223	6,397	5,217	3,662	1,974	686	102,801
1930–31	420	3,327	2,930	13,359	36,852	17,751	8,235	7,948	7,236	5,753	3,096	2,071	816	109,794
1931–32	400	3,149	1,981	13,011	30,910	14,620	7,339	8,253	8,291	6,472	3,749	2,412	1,144	101,731
1932–33 [2]	275	2,610	1,687	8,768	24,078	10,816	6,128	6,395	5,958	5,019	2,860	1,992	834	77,420
1933–34 [2]	261	1,535	1,597	6,530	16,420	9,071	6,855	------	------	------	------	------	------	------

[1] Crop movement season covers 13 months, from June of one year through June of the following year.
[2] Beginning January 1933, figures are preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 170.—*Apples: Car-lot shipments, by State of origin, 1923–24 to 1932–33*

State	Crop-movement season [1]									
	1923–24	1924–25	1925–26	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Maine	918	2,115	1,320	660	889	227	1,333	989	154	1,216
New Hampshire	311	805	498	339	515	355	322	719	71	220
Vermont	91	324	321	316	563	324	630	490	591	609
Massachusetts	246	587	302	477	298	388	275	975	48	180
New York	20,434	16,631	29,499	21,680	10,030	13,671	9,253	15,429	9,090	10,579
New Jersey	399	130	441	340	701	354	331	906	200	158
Pennsylvania	4,033	1,706	2,486	4,988	3,005	2,796	2,401	2,765	3,313	2,913
Ohio	1,051	1,046	1,022	1,739	837	1,547	438	196	1,643	391
Indiana	428	274	407	723	113	528	186	210	611	112
Illinois	6,832	5,867	6,561	6,149	2,552	5,046	2,326	3,388	4,779	1,884
Michigan	9,266	3,443	6,008	4,328	2,002	2,651	4,053	1,884	2,819	1,393
Wisconsin	387	253	420	387	366	432	595	151	139	138
Missouri	4,050	2,939	3,056	2,015	736	1,758	758	541	1,295	217
Kansas	1,412	1,294	1,165	675	1,458	516	670	249	1,252	33
Delaware	1,590	1,384	1,896	2,099	1,352	1,352	820	1,353	724	819
Maryland	2,181	1,239	1,333	2,491	1,792	1,722	1,852	1,378	2,048	974
Virginia	9,830	13,079	7,397	18,674	8,686	20,282	16,705	7,402	17,172	6,990
West Virginia	7,332	3,762	3,927	7,393	7,054	6,608	7,385	3,381	6,987	3,772
Arkansas	2,763	3,451	3,191	1,842	629	1,265	417	331	331	106
Montana	461	173	29	343	149	527	391	388	252	237
Idaho	6,935	2,223	7,485	3,677	7,709	6,508	7,119	6,972	5,354	4,324
Colorado	2,718	2,404	3,193	2,877	2,228	2,804	2,322	1,082	1,093	1,361
New Mexico	1,368	864	1,112	785	467	305	966	212	280	110
Utah	947	338	1,198	450	428	611	196	1,089	3	479
Washington	37,633	25,156	35,046	34,729	30,280	41,317	34,220	45,217	34,558	30,822
Oregon	6,428	5,515	4,702	6,422	3,396	6,447	2,680	5,624	2,139	3,324
California	6,505	4,891	2,531	5,084	4,020	6,300	3,462	5,953	3,847	3,930
Other States	1,635	1,950	1,258	1,868	839	889	695	520	938	129
Total	138,184	103,843	127,804	133,550	93,094	127,530	102,801	109,794	101,731	77,420

[1] Crop-movement season extends from June of one year through June of the following year.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 171.—*Apples: Cold-storage holdings, United States, 1924–25 to 1933–34*

BARRELS[1]

Season	Oct. 1	Nov. 1	Dec. 1	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1
	1,000 barrels	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*
1924–25	479	3,172	3,709	3,254	2,498	1,803	1,046	504	165
1925–26	885	3,749	4,245	3,855	3,157	2,288	1,307	617	221
1926–27	484	3,188	4,554	4,077	3,178	2,152	1,286	650	229
1927–28	449	1,864	2,055	1,699	1,266	846	501	262	121
1928–29	652	2,978	2,889	2,354	1,678	1,128	652	319	108
1929–30	735	2,189	2,097	1,762	1,316	897	481	229	96
1930–31	500	1,571	1,456	1,197	834	482	200	86	38
1931–32	398	2,285	2,177	1,944	1,322	762	369	165	63
1932–33	389	1,242	1,349	1,209	924	609	337	182	64
1933–34	276	949	892	-------	-------	-------	-------	-------	-------

BUSHEL BASKETS

Season	Oct. 1	Nov. 1	Dec. 1	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1
	1,000 baskets	*1,000 baskets*	*1,000 baskets*	*1,000 baskets*	*1,000 baskets*	*1,000 baskets*	*1,000 baskets*	*1,000 baskets*	*1,000 baskets*
1924–25	193	1,138	1,374	1,167	940	608	314	117	29
1925–26	519	2,056	2,419	2,103	1,672	1,138	672	329	124
1926–27	352	2,235	2,713	2,472	2,037	1,589	952	533	199
1927–28	724	3,309	3,905	3,177	2,315	1,536	900	460	222
1928–29	1,084	4,932	5,057	4,240	3,204	2,171	1,308	590	220
1929–30	1,793	6,379	6,613	5,507	4,005	2,805	1,555	763	309
1930–31	1,982	6,748	6,946	5,996	4,469	2,855	1,300	571	193
1931–32	2,032	9,787	10,817	9,681	7,694	5,182	2,737	1,269	465
1932–33	2,342	9,881	10,533	9,117	7,213	5,237	3,208	1,691	640
1933–34	2,851	8,632	8,577	-------	-------	-------	-------	-------	-------

BOXES[2]

Season	Oct. 1	Nov. 1	Dec. 1	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1
	1,000 boxes	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*
1924–25	829	6,620	9,917	9,089	7,264	5,266	3,412	1,801	674
1925–26	1,091	9,165	13,041	11,868	10,009	7,898	5,350	2,892	1,104
1926–27	1,809	9,523	15,083	13,365	10,435	7,298	4,613	2,312	717
1927–28	1,043	9,074	13,423	12,260	9,809	7,023	4,960	2,889	1,223
1928–29	1,854	12,333	17,452	15,853	12,388	7,995	4,889	2,224	631
1929–30	901	11,045	15,235	13,108	10,149	7,282	4,790	2,446	761
1930–31	2,135	15,669	21,267	19,137	15,347	11,371	6,852	3,683	1,425
1931–32	3,203	15,472	16,849	14,617	11,761	8,789	5,886	3,392	1,364
1932–33	2,414	12,873	14,852	12,794	10,124	7,179	4,462	2,463	938
1933–34	1,567	11,067	13,874	-------	-------	-------	-------	-------	-------

TOTAL[3]

Season	Oct. 1	Nov. 1	Dec. 1	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1924–25	2,460	17,274	22,419	20,019	15,699	11,283	6,864	3,429	1,197
1925–26	4,266	22,467	28,194	25,536	21,153	15,900	9,942	5,073	1,890
1926–27	3,612	21,321	31,458	28,068	22,005	15,342	9,423	4,794	1,602
1927–28	3,114	17,976	23,493	20,534	15,923	11,097	7,363	4,134	1,808
1928–29	4,893	26,199	31,177	27,154	20,626	13,551	8,153	3,772	1,174
1929–30	4,900	23,991	28,139	23,902	18,102	12,778	7,787	3,895	1,358
1930–31	5,618	27,129	32,580	28,725	22,317	15,672	8,751	4,512	1,731
1931–32	6,429	32,115	34,197	30,129	23,421	16,257	9,729	5,157	2,019
1932–33	5,922	26,481	29,433	25,539	21,109	14,244	8,682	4,701	1,770
1933–34	5,247	22,545	25,128	-------	-------	-------	-------	-------	-------

[1] Mostly in eastern and central United States.
[2] Mostly western apples.
[3] 1 barrel is considered the equivalent of 3 boxes or 3 bushel baskets.

Bureau of Agricultural Economics; compiled from reports made by cold-storage establishments.

TABLE 172.—*Apples:* [1] *International trade, average 1925–29, annual 1929–32*

Country	Calendar year: Average, 1925–29		1929		1930		1931		1932 [2]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
United States	14, 448	137	16, 856	268	15, 850	157	17, 785	36	16, 919	54
Canada	3, 626	542	4, 665	440	6, 390	485	4, 783	424	4, 708	225
Australia [3]	2, 161	0	1, 342	0	3, 621	0	2, 770	0	3, 916	0
France [4]	1, 876	608	405	1, 382	1, 314	1, 737	1, 722	3, 016	1, 783	2, 831
Italy	1, 597	1	1, 907	2	1, 908	3	1, 535	6	1, 236	9
Netherlands	1, 309	422	1, 738	557	448	778	721	911	998	1, 114
Belgium	1, 122	303	1, 108	404	1, 005	704	486	964	1, 927	617
Rumania	[5] 734	[5] 1	[6] 582	[6] 4	[6] 604	[6] 3	354	17	140	1
Yugoslavia	783	[5] 2	1, 125	6	2, 688	2	865	5	1, 999	1
New Zealand	565	31	789	30	1, 072	27	1, 081	12	1, 259	4
Total	28, 221	2, 047	30, 517	3, 093	34, 900	3, 896	32, 102	5, 391	34, 885	4, 856
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	0	14, 247	0	12, 832	0	13, 583	0	17, 007	0	18, 140
Germany	34	8, 415	38	7, 501	40	11, 195	157	5, 444	116	11, 758
Sweden	0	754	0	998	150	683	0	829	0	799
Denmark	1	684	0	825	3	674	0	912	1	453
Irish Free State	2	469	2	441	6	449	5	475	0	517
Egypt	2	379	3	487	[4] 1	360	2	194	--------	161
Norway [4]	0	202	0	219	0	170	0	210	0	147
Brazil	0	191	0	268	0	114	0	146	0	134
Finland	0	178	0	218	0	166	0	141	0	86
Cuba	0	96	0	78	0	80	0	58	0	--------
Poland	18	88	7	274	150	484	7	375	3	163
Total	57	25, 703	50	24, 141	350	27, 958	171	25, 791	120	32, 358

[1] Foreign weights are converted to bushels on the basis of 48 pounds per bushel; domestic, 1 barrel equals 3 boxes (or bushels).
[2] Preliminary. [3] Year ended June 30. [4] Includes pears. [5] 4-year average. [6] Includes pears and quinces.

Bureau of Agricultural Economics; official sources.

TABLE 173.—*Apples: Average price per bushel received by producers, United States, 1924–25 to 1933–34*

Year	June 15	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	159. 3	141. 3	121. 6	109. 8	115. 9	119. 5	128. 2	144. 9	150. 7	155. 4	158. 4	179. 2	123. 8
1925–26	201. 4	158. 7	130. 7	112. 5	120. 5	127. 7	137. 4	146. 3	146. 3	139. 8	143. 2	148. 2	128. 5
1926–27	168. 7	133. 8	103. 8	88. 4	80. 2	81. 6	87. 7	97. 3	98. 8	100. 0	103. 8	113. 5	89. 4
1927–28	140. 0	144. 4	135. 8	130. 7	134. 7	141. 8	152. 4	161. 7	168. 3	177. 0	183. 3	190. 6	145. 0
1928–29	188. 7	156. 0	105. 5	96. 6	99. 4	107. 9	118. 5	124. 1	129. 9	134. 1	133. 5	147. 9	109. 5
1929–30	153. 1	160. 5	138. 9	131. 0	137. 9	135. 6	143. 4	148. 3	154. 0	155. 2	159. 9	168. 2	141. 5
1930–31	173. 6	144. 8	106. 3	103. 2	98. 4	96. 7	98. 8	103. 8	106. 0	105. 5	117. 1	121. 9	103. 7
1931–32	131. 5	107. 9	77. 4	70. 7	58. 9	61. 3	64. 7	66. 4	66. 4	71. 2	79. 2	82. 7	67. 3
1932–33	92. 1	86. 2	65. 1	57. 4	57. 2	57. 1	61. 7	65. 1	66. 3	70. 3	78. 6	84. 9	63. 1
1933–34	88. 7	86. 9	74. 7	72. 8	70. 3	73. 1	80. 0	------	------	------	------	------	--------

Bureau of Agricultural Economics. Based upon returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; yearly price obtained by weighting monthly prices by car-lot shipments.

TABLE 174.—*Apples: Weighted average auction price per box, New York, 1929–30 to 1933–34*

Variety and season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average
Gravenstein:	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1929–30	3.58	3.28	2.30	1.83										2.80
1930–31	2.17	2.09	1.81											2.06
1931–32	2.27	2.16	1.35											2.08
1932–33	1.60	1.21	1.57											1.37
1933–34	1.92	1.58	1.31											
Winter Banana:														
1929–30			2.56	2.37	2.10	2.32	2.39	2.08	2.00	2.07				2.42
1930–31		2.00	1.68	1.53	1.38	1.44	1.37	1.57		1.59				1.63
1931–32		2.06	1.25	1.30	1.18	1.27	1.09	1.58		.90	0.85			1.30
1932–33		1.25	1.34	1.00		.71		1.15						1.25
1933–34			1.33	1.18	1.10									
Delicious:														
1929–30			3.35	3.30	3.13	3.21	3.23	3.33	3.36	3.58	3.48	3.63	2.04	3.31
1930–31			2.70	2.49	2.56	2.58	2.51	2.40	2.39	2.41	2.45	2.03	1.88	2.44
1931–32			2.38	2.09	2.06	2.12	1.88	2.05	2.09	2.26	1.94	1.70		2.07
1932–33			2.12	1.71	1.64	1.61	1.44	1.44	1.58	1.94	1.92	1.79	.80	1.63
1933–34			2.43	1.85	1.94	2.13								
Jonathan:														
1929–30			2.85	2.78	2.45	1.94	2.27	2.00	2.02	1.76				2.64
1930–31			2.23	1.80	1.82	1.69	1.77							1.86
1931–32			1.65	1.46	1.24	1.18	1.15	1.05	.88	1.30				1.39
1932–33			1.99	1.40	1.36	1.15	1.09		.50	.80	.70			1.46
1933–34			1.86	1.50	1.33	1.35								
McIntosh:														
1929–30			2.86	2.38	2.41	2.42	2.61	2.81	3.26	3.63	3.55			2.68
1930–31			1.75	2.02	1.96	1.84	1.70	1.78	2.01	2.33	2.60			1.92
1931–32			1.61	1.92	2.04	1.96	1.82	1.84	2.05	2.05	1.99	2.36		1.97
1932–33			1.65	1.35	1.29	1.32	1.25	1.16	1.16	1.23	1.43	1.96		1.31
1933–34			1.47	1.15										
Rome Beauty:														
1929–30			3.17	2.71	2.35	2.42	2.41	2.40	2.37	2.80	2.54	2.61		2.49
1930–31			2.27	1.98	1.79	1.70	1.68	1.76	1.89	1.99	2.07	1.88	1.29	1.84
1931–32			2.35	1.76	1.54	1.51	1.42	1.36	1.38	1.39	1.30	1.26	.81	1.44
1932–33			1.68	1.52	1.30	1.39	1.32	1.28	1.18	1.21	1.28	1.38		1.30
1933–34			2.23	1.64	1.41	1.72								
Esopus Spitzenberg:														
1929–30				3.06	2.83	2.76	2.52	2.58	2.11	2.55				2.75
1930–31				2.02	2.08	2.10	1.96	1.80	1.87	1.68				2.01
1931–32				1.87	1.82	1.66	1.45	1.45	1.41	1.35	.97			1.73
1932–33				1.55	1.46	1.43	1.23	1.28	1.22	1.24	1.19			1.40
1933–34				1.77	1.63	1.87								
Yellow Newtown:														
1929–30					2.97	2.32	2.73	2.74	2.90	2.83	2.98	3.04	2.88	2.93
1930–31				2.04	2.79	1.84	1.95	1.87	1.99	2.11	2.32	2.49		2.24
1931–32				1.84	1.96	1.80	1.38	1.62	1.70	1.88	2.06	2.08	1.24	1.94
1932–33				1.62	1.41	1.32	1.25	1.27	1.31	1.48	1.70	2.19	2.48	1.76
1933–34					2.20	1.81								
Winesap:[1]														
1929–30					2.64	2.61	2.61	2.63	2.43	2.64	2.67	3.01	3.13	2.67
1930–31					2.15	2.16	2.13	2.00	2.16	2.23	2.27	2.08	2.09	2.14
1931–32				1.52	1.78	1.77	1.52	1.47	1.53	1.60	1.42	1.52	1.48	1.53
1932–33					1.35	1.49	1.38	1.36	1.31	1.52	1.45	1.60	1.73	1.50
1933–34					1.74	1.72								
Summary:														
1929–30	3.58	3.28	2.54	2.79	2.66	2.70	2.72	2.75	2.69	2.93	2.81	3.02	3.12	2.78
1930–31	2.17	2.09	2.02	2.02	2.03	2.06	2.01	2.01	2.12	2.21	2.30	2.18	2.08	[2] 2.10
1931–32	2.27	2.16	1.70	1.78	1.77	1.77	1.60	1.65	1.72	1.74	1.60	1.62	1.47	[2] 1.71
1932–33	1.60	1.21	1.69	1.55	1.49	1.51	1.38	1.37	1.41	1.57	1.59	1.80	1.76	[2] 1.51
1933–34	1.92	1.58	1.45	1.69	1.71	1.92								

[1] Average for season includes a price in August as follows: 1930–31, \$1.78; 1931–32, \$0.94; 1932–33, \$1.55.
[2] See note [1] for Winesaps.

Bureau of Agricultural Economics; compiled from New York Daily Fruit Reporter, deciduous section. Prices are weighted by number of boxes sold.

TABLE 175.—*Apples: L. c. l. price per bushel, New York, 1929–30 to 1933–34*

Variety and season	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Average
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Baldwin:										
1929–30			1.80	2.02	1.93	1.89	1.91	[1] 2.02		1.93
1930–31		[1] 1.19	1.14	1.25	[1] 1.36	[1] 1.53	[1] 1.59	2.00	[1] 2.09	1.52
1931–32				[1] .82	[1] .91	.93	1.06	1.23	[1] 1.19	1.02
1932–33			[1] .85	[1] .72	1.08	1.11		1.09	1.02	.98
1933–34		.83	.85	.84						
McIntosh (New York State):										
1929–30	2.98	2.45	2.59	2.57	2.58	2.76	3.54	[1] 4.25		2.96
1930–31	1.62	1.67	1.72	1.64	1.53	1.60	[1] 1.97	2.13	[1] 2.53	1.82
1931–32	1.38	1.70	1.78	1.79	1.85		2.11	2.12	[1] 1.76	1.81
1932–33	1.06	1.13	1.18	1.10	1.15	1.13	1.25	1.53		1.19
1933–34	1.10	1.15	1.37	1.46						
Greening:										
1929–30	2.19	2.22	2.07	2.19	2.20	2.25	2.44			2.22
1930–31	1.09	1.06	1.17	1.33	1.28	1.36	1.64			1.28
1931–32		1.08	1.28	1.26	1.16	1.07	1.23			1.18
1932–33		.72	.76	.78	.71	.75	.93	[1] 1.27		.85
1933–34	.98	1.03	1.21	1.18						

[1] Less than 10 quotations.

Bureau of Agricultural Economics; compiled from daily market reports from the Bureau representative at New York.

Average prices as shown are based on stock of good merchantable quality and condition, 2½ inches unless otherwise stated; they are simple averages of daily range of selling prices. Average for season is simple average of monthly averages.

TABLE 176.—*Apricots: Production and average price per ton received by producers, California, 1924–33*

Item	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933 [1]
Production ..... short tons	142,000	150,000	176,000	208,000	175,000	215,000	[2] 200,000	[2] 277,000	[2] 270,000	244,000
Price ..... dollars	46.00	54.00	63.00	57.00	50.00	63.00	39.00	29.00	17.70	29.70
Farm value, basis average price ..... 1,000 dollars	6,532	8,100	11,088	11,856	8,750	13,545	7,476	7,917	4,549	7,247

[1] Preliminary.
[2] Includes some fruit not harvested on account of market conditions (but not included in computing value), as follows: 1930, 8,300 tons; 1931, 4,000 tons; 1932, 13,000 tons.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 177.—*Asparagus, commercial crop: Acreage, production, and season average price per crate or per ton received by producers, average 1927–31, annual 1932 and 1933*

Utilization	Acreage			Production			Price for crop of—		
	Average 1927–31	1932	1933	Average 1927–31	1932	1933	Average 1927–31	1932	1933
	Acres	*Acres*	*Acres*	*1,000 crates* [1]	*1,000 crates* [1]	*1,000 crates* [1]	*Dollars*	*Dollars*	*Dollars*
For market	51,010	72,720	60,830	4,023	5,545	4,773	2.33	1.43	1.26
				Short tons	*Short tons*	*Short tons*			
For manufacture	42,760	38,070	55,670	61,510	41,800	67,900	77.91	55.47	56.13

[1] Crates containing approximately 24 pounds.

Bureau of Agricultural Economics; estimates based upon returns from crop reporters and canning establishments.

TABLE 178.—*Artichokes, commercial crop: Acreage, production, and season average price per box received by producers, average 1927–31, annual 1932 and 1933*

State	Acreage			Production			Price for crop of—		
	Average 1927–31	1932	1933	Average 1927–31	1932	1933	Average 1927–31	1932	1933
	Acres	*Acres*	*Acres*	*1,000 boxes* [1]	*1,000 boxes* [1]	*1,000 boxes* [1]	*Dollars*	*Dollars*	*Dollars*
California	8, 490	6, 330	6, 350	1, 013	570	743	1. 91	2. 10	1. 24

[1] Boxes containing approximately 40 pounds.

Bureau of Agricultural Economics; estimates based upon returns from crop reporters.

TABLE 179.—*Avocados: Production and average price per ton received by producers, California, 1925–33*

Item	1925	1926	1927	1928	1929	1930	1931	1932	1933 [1]
Production......short tons..	233	625	319	1, 125	396	2, 110	2, 525	1, 647	1, 793
Price................dollars..	540	400	680	330	658	260	166	171	179
Farm value, basis average price.........1,000 dollars..	126	250	217	371	261	549	419	282	321

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 180.—*Beans, lima, commercial crop: Acreage, production, and season average price per bushel or per ton received by producers; average 1927–31, annual 1932 and 1933*

Utilization	Acreage			Production			Price for crop of—		
	Average 1927–31	1932	1933	Average 1927–31	1932	1933	Average 1927–31	1932	1933
	Acres	*Acres*	*Acres*	*1,000 bushels* [1]	*1,000 bushels* [1]	*1,000 bushels* [1]	*Dollars*	*Dollars*	*Dollars*
For market	7, 480	13, 120	11, 850	494	908	568	1. 97	1. 08	1. 02
				Short tons [2]	*Short tons* [2]	*Short tons* [2]			
For manufacture	[3] 28, 100	17, 880	16, 330	[3] 13, 600	9, 700	8, 800	[3] 82. 96	56. 04	56. 70

[1] Bushels containing approximately 28 pounds, unshelled.
[2] Reported on shelled basis.
[3] Short-time average.

Bureau of Agricultural Economics; estimates based upon returns from crop reporters and canning establishments.

TABLE 181.—*Beans, snap, commercial crop: Acreage, production, and season average price per bushel or per ton received by producers; average 1927–31, annual 1932 and 1933*

Utilization	Acreage			Production			Price for crop of—		
	Average 1927–31	1932	1933	Average 1927–31	1932	1933	Average 1927–31	1932	1933
	Acres	*Acres*	*Acres*	*1,000 bushels* [1]	*1,000 bushels* [1]	*1,000 bushels* [1]	*Dollars*	*Dollars*	*Dollars*
For market	98, 650	122, 250	121, 690	[2] 8, 512	[2] 11, 333	[2] 10, 788	1. 56	0. 90	0. 91
				Short tons	*Short tons*	*Short tons*			
For manufacture	55, 410	31, 460	36, 220	75, 100	43, 900	54, 100	60. 35	37. 70	38. 11

[1] Bushels containing approximately 24 pounds.
[2] Includes some quantities not harvested on account of market conditions: 437,000 bushels in 1930, 150,000 bushels in 1931, 695,000 bushels in 1932, and 263,000 bushels in 1933. Price refers to harvested portion of crop.

Bureau of Agricultural Economics; estimates based upon returns from crop reporters and canning establishments.

TABLE 182.—*Beans, snap: Car-lot shipments, by State of origin, 1922–33*

State	Calendar year [1]											
	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
New York	11	33	81	62	39	31	49	69	30	98	66	14
New Jersey	68	15	100	48	56	203	110	61	114	129	58	136
Maryland	149	49	136	127	197	235	246	214	352	479	238	178
Virginia	268	101	899	570	841	877	657	1, 025	541	598	663	335
North Carolina	219	261	559	459	550	504	690	736	998	711	626	474
South Carolina	503	585	517	334	449	425	439	779	682	721	563	263
Georgia	65	26	68	27	52	96	48	152	230	175	139	48
Florida	715	1, 644	1, 157	1, 992	946	2, 583	2, 700	3, 254	4, 118	4, 319	6, 941	7, 868
Tennessee	63	81	248	84	174	45	119	132	233	83	50	16
Mississippi	252	47	85	88	130	143	192	312	310	208	284	43
Arkansas	1	2	7	13	18	18	69	92	130	36	28	3
Louisiana	90	107	439	683	588	662	822	1, 156	744	857	525	356
Texas	26	88	210	407	414	471	294	356	654	607	395	488
Colorado	2	------	------	5	------	5	3	58	165	76	10	42
California	20	26	32	118	127	60	116	77	119	92	73	113
Other States	144	59	154	116	126	123	132	153	139	159	136	83
Total	2, 596	3, 124	4, 692	5, 133	4, 707	6, 481	6, 686	8, 626	9, 559	9, 348	10, 795	10, 460

[1] Crop-movement season is for calendar year, except Florida which begins in October of the preceding year.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included. Beginning 1931 figures include lima beans in pod.

TABLE 183.—*Cabbage, commercial crop: Acreage, production, and season average price per ton received by producers, by States; average 1927–31, annual 1932 and 1933* [1]

FOR MARKET AND SAUERKRAUT

Group and State	Acreage			Production			Price for crop of—		
	Average 1927–31	1932	1933	Average 1927–31	1932	1933	Average 1927–31	1932	1933
	Acres	*Acres*	*Acres*	*Short tons*	*Short tons*	*Short tons*	*Dollars*	*Dollars*	*Dollars*
Fall:									
South Carolina	580	600	1, 100	5, 100	2, 400	4, 400	43. 20	16. 00	10. 00
Virginia, Norfolk	170	100	200	800	200	1, 000	42. 90	26. 00	16. 00
Total	750	700	1, 300	5, 900	2, 600	5, 400	43. 17	16. 54	11. 11
Early: [2]									
California	4, 850	4, 250	4, 400	[3] 28, 200	28, 900	30, 800	22. 70	21. 70	19. 20
Florida	4, 520	5, 500	6, 200	[3] 28, 700	22, 000	[3] 43, 400	37. 50	32. 00	16. 00
Louisiana	3, 200	2, 500	2, 200	13, 800	10, 000	8, 400	23. 90	26. 50	21. 60
Texas	23, 530	22, 900	18, 100	[3] 141, 600	114, 500	67, 000	18. 90	25. 80	8. 30
Total	36, 100	35, 150	30, 900	[3] 212, 300	175, 400	[3] 149, 600	22. 27	25. 94	13. 40
Second early:									
Alabama	2, 390	1, 280	1, 800	13, 000	9, 600	7, 200	32. 20	48. 50	25. 00
Georgia	370	350	1, 000	2, 200	1, 800	4, 000	24. 30	52. 00	24. 00
Mississippi	2, 870	2, 900	3, 500	14, 800	11, 300	13, 300	32. 40	50. 00	32. 50
North Carolina	760	800	850	4, 200	2, 000	3, 400	36. 60	30. 00	26. 00
South Carolina	2, 920	2, 000	1, 800	[3] 27, 300	14, 800	18, 900	35. 70	34. 00	24. 00
Virginia	4, 660	4, 300	4, 850	[3] 23, 500	12, 600	17, 800	36. 40	40. 00	24. 80
Eastern Shore	1, 410	1, 700	2, 000	[3] 8, 300	5, 300	9, 000	32. 40	40. 00	26. 00
Norfolk	3, 250	2, 600	2, 850	[3] 15, 200	7, 300	8, 800	38. 80	40. 00	23. 50
Total	13, 970	11, 630	13, 800	[3] 85, 000	52, 100	64, 600	34. 15	42. 07	26. 18
Intermediate:									
Arkansas	420	400	320	1, 800	1, 600	1, 100	22. 20	36. 00	35. 00
Illinois	1, 850	2, 200	2, 200	14, 800	19, 800	10, 800	15. 10	5. 00	26. 60
Iowa	1, 520	1, 700	1, 900	10, 100	12, 900	8, 900	18. 20	4. 90	17. 50
Kentucky	200	200	210	1, 300	1, 000	1, 000	27. 10	35. 00	30. 00
Maryland	2, 080	2, 220	2, 330	12, 100	6, 700	10, 700	28. 90	35. 00	24. 50
Missouri	920	1, 000	1, 000	5, 900	6, 000	4, 500	22. 10	28. 00	36. 00

See footnotes at end of table.

TABLE 183.—*Cabbage, commercial crop: Acreage, production, and season average price per ton received by producers, by States; average 1927–31, annual 1932 and 1933* [1]—Continued

Group and State	Acreage			Production			Price for crop of—		
	Average 1927–31	1932	1933	Average 1927–31	1932	1933	Average 1927–31	1932	1933
Intermediate—Contd.	*Acres*	*Acres*	*Acres*	*Short tons*	*Short tons*	*Short tons*	*Dollars*	*Dollars*	*Dollars*
New Jersey	4,540	5,000	5,500	26,600	25,000	30,800	25.90	14.60	20.00
New Mexico	480	300	250	3,600	1,600	1,400	28.60	17.00	25.00
New York, Long Island	3,010	2,950	2,650	31,400	28,000	25,400	20.80	16.00	22.00
Ohio, southeast	790	900	600	[3] 7,100	2,700	2,700	25.30	16.70	37.00
Tennessee	2,360	1,430	1,500	14,100	7,900	7,500	23.10	33.00	31.30
Virginia, southwest	2,510	2,650	2,500	16,400	6,600	10,000	19.00	12.50	21.30
Washington	1,950	2,010	1,200	17,100	16,100	8,400	22.00	12.00	16.60
Total [4]	22,630	22,960	22,160	[3] 162,300	135,900	123,200	21.92	15.29	22.99
Late (domestic):									
Colorado	1,420	1,760	1,500	15,300	[3] 17,600	16,500	14.10	7.50	18.90
Indiana	2,250	2,870	2,800	16,400	25,000	12,900	11.50	4.90	13.80
Michigan	3,130	3,290	2,800	22,200	32,900	16,500	8.40	4.00	18.40
Minnesota	1,080	1,170	1,000	9,100	8,800	6,200	9.50	5.80	15.60
New York	10,130	10,000	8,000	99,600	[3] 110,000	52,000	10.60	3.20	13.80
Ohio	2,950	2,560	2,260	26,300	23,600	8,400	7.60	4.20	10.00
Oregon	1,470	1,600	2,000	11,600	12,000	14,000	18.70	8.00	13.40
Pennsylvania	1,160	1,100	1,050	10,800	9,900	7,200	18.00	6.00	19.30
Utah	360	550	400	4,600	8,200	3,700	12.80	2.20	12.20
Wisconsin	9,480	9,900	7,200	74,200	79,200	43,900	9.00	3.80	13.80
Total [4]	33,430	34,800	29,010	290,100	[3] 327,200	181,300	10.32	4.16	14.73
Late (Danish):									
Colorado	1,880	2,390	1,960	23,600	[3] 26,300	22,700	13.90	4.00	15.00
Indiana	[5] 300	420	400	[5] 2,100	2,200	2,000	[5] 16.60	4.50	21.00
Michigan	450	750	700	3,300	6,800	3,800	15.30	3.50	23.00
Minnesota	1,930	2,070	1,760	12,600	13,500	8,800	14.50	4.00	17.50
New York	21,050	21,000	16,800	177,600	189,000	122,600	13.00	3.50	16.90
Ohio	450	440	480	3,500	2,600	2,800	14.60	5.00	18.00
Pennsylvania	620	600	500	4,400	5,400	3,900	15.60	6.00	16.00
Wisconsin	8,570	7,400	5,000	66,100	48,100	32,500	12.60	3.00	17.00
Total [4]	35,120	35,070	27,600	292,300	[3] 293,900	199,100	12.82	3.54	16.87
Grand total [4]	142,000	140,310	124,770	[3] 1,047,900	[3] 987,100	[3] 723,200	16.87	11.60	17.48

FOR SAUERKRAUT [6]

New York	6,030	4,900	6,900	57,100	56,400	45,500	8.17	3.70	13.40
Ohio	2,610	2,080	1,800	22,900	19,100	6,100	6.91	4.10	7.10
Indiana	1,250	1,600	1,600	7,900	14,900	6,400	7.75	4.10	6.50
Illinois	610	450	600	4,600	4,000	2,700	11.27	4.10	16.10
Michigan	1,660	900	700	12,300	9,400	3,900	6.93	4.00	6.80
Wisconsin	4,760	4,300	3,000	39,700	32,700	18,900	8.09	4.20	9.50
Minnesota	460	200	150	4,100	2,200	800	6.79	5.40	6.20
Colorado	410	200	200	4,900	2,000	2,200	8.52	3.70	12.00
Washington	270	200	200	2,400	1,800	1,800	11.76	7.10	11.00
Other States [7]	1,540	1,340	1,290	11,100	9,400	7,100	9.87	5.74	8.45
Total	19,600	16,170	16,440	167,000	151,900	95,400	8.06	4.11	11.07

[1] On the late Danish crop, season prices are computed only to Dec. 1.
[2] Season begins in fall of previous year.
[3] Includes some quantities not harvested on account of market conditions: California, 7,500 tons in 1931; Florida, 7,100 tons in 1931 and 6,500 tons in 1933; Texas, 37,500 tons in 1931; South Carolina, 10,200 tons in 1931; Virginia, Eastern Shore, 1,400 tons and Norfolk section, 5,000 tons in 1931; Ohio (southeast), 2,200 tons in 1931; Colorado, 4,000 tons of domestic and 8,300 tons of Danish in 1932; New York, domestic, 12,000 tons in 1932. Price refers to harvested portion of crop.
[4] Includes quantities used by sauerkraut manufacturers.
[5] Short-time average.
[6] All these figures are included in upper portion of this table but are segregated here for convenient reference.
[7] Other States includes Arkansas, Iowa, Maryland, Missouri, New Jersey, Oregon, Pennsylvania, Tennessee, Utah, and Virginia.

Bureau of Agricultural Economics; estimates based upon returns from crop reporters and sauerkraut manufacturers.

TABLE 184.—*Cabbage: Car-lot shipments, by State of origin, 1922–32*

State	Crop-movement season [1]										
	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
New York	10,274	9,086	11,816	12,545	12,898	14,080	8,636	10,609	11,917	12,014	9,778
Pennsylvania	406	317	409	552	523	420	252	302	216	194	88
Ohio	589	538	658	414	544	765	581	555	66	484	126
Illinois	144	289	279	198	195	193	329	296	355	188	390
Michigan	908	732	644	573	287	375	428	256	153	137	329
Wisconsin	5,875	6,415	4,955	5,409	5,177	4,547	6,412	5,395	5,959	3,156	3,292
Minnesota	1,192	989	1,552	873	1,125	1,009	1,493	1,200	683	493	778
Iowa	566	390	541	265	459	435	566	442	504	184	425
Maryland	448	220	509	238	166	293	266	428	67	75	70
Virginia	2,937	3,326	3,400	2,225	1,814	2,720	2,444	3,969	1,772	1,821	1,050
North Carolina	222	364	275	356	341	292	254	261	214	189	58
South Carolina	3,235	4,299	1,530	3,421	2,671	1,900	2,209	2,549	2,731	1,864	934
Florida	2,998	1,172	3,842	1,936	1,667	1,051	1,168	3,136	2,271	3,261	1,521
Kentucky	73	85	107	45	17	24	33	75	25	30	3
Tennessee	563	270	348	317	609	667	823	1,256	952	330	316
Alabama	1,364	1,564	908	1,270	1,586	1,803	861	857	676	1,166	817
Mississippi	1,629	1,134	605	674	990	710	1,249	1,689	931	1,148	718
Louisiana	334	456	103	644	331	592	592	549	265	616	485
Texas	4,049	1,356	7,281	4,048	6,093	5,546	7,242	7,905	5,347	8,916	6,225
Colorado	1,964	3,174	1,473	1,432	1,274	683	1,162	810	1,164	602	464
Washington	104	155	52	103	154	139	82	168	85	108	49
California	835	684	364	650	663	360	798	512	837	243	836
Other States	520	473	430	836	794	727	847	912	1,014	681	390
Total	41,229	37,488	42,081	39,024	40,378	39,331	38,727	44,131	38,204	37,900	29,142

[1] Crop-movement season covers 17 months, from December through the second following April; i.e., the 1922 season begins December 1921 and ends April 1923. Figures for certain States include shipments for month preceding or following the regular crop-movement season.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 185.—*Beets, commercial crop: Acreage, production, and season average price per bushel or per ton received by producers; average 1927–31, annual 1932 and 1933*

Utilization	Acreage			Production			Price for crop of—		
	Average 1927–31	1932	1933	Average 1927–31	1932	1933	Average 1927–31	1932	1933
	Acres	*Acres*	*Acres*	*1,000 bushels* [1]	*1,000 bushels* [1]	*1,000 bushels* [1]	*Dollars*	*Dollars*	*Dollars*
For market	8,800	10,740	10,400	[2] 1,674	1,671	1,657	0.65	0.42	0.48
				Short tons	*Short tons*	*Short tons*			
For canning	[3] 7,460	2,970	4,040	[3] 40,700	21,600	24,800	[3] 14.83	8.56	9.27

[1] Bushels containing approximately 56 pounds.
[2] Includes some quantities not harvested on account of market conditions: 450,000 bushels in 1931. Price refers to harvested portion of crop.
[3] Short-time average.

Bureau of Agricultural Economics; estimates based upon returns from crop reporters and canning establishments.

TABLE 186.—*Cantaloups,*[1] *commercial crop: Acreage, production, and season average price per crate received by producers, by States; average 1927–31, annual 1932 and 1933*

Group and State	Acreage			Production			Price for crop of—		
	Average 1927–31	1932	1933	Average 1927–31	1932	1933	Average 1927–31	1932	1933
	Acres	*Acres*	*Acres*	*1,000 crates* [2]	*1,000 crates* [2]	*1,000 crates* [2]	*Dollars*	*Dollars*	*Dollars*
Early:									
California, Imperial	42,460	45,750	35,540	6,513	[3] 6,405	[3] 4,052	1.44	1.15	1.16
Florida	560	200	400	30	15	24	1.90	1.00	1.00
Texas	570	150		56	15		1.56	2.00	
Total	43,590	46,100	35,940	6,599	[3] 6,435	[3] 4,076	1.44	1.15	1.16
Second early:									
Arizona	12,400	12,500	8,100	1,943	[3] 1,500	[3] 1,134	1.16	.40	.40
Arkansas	3,690	3,350	2,500	266	234	112	1.24	.45	.75
California, other	12,980	18,180	10,000	2,421	[3] 3,036	1,540	1.13	.62	.75
Georgia	700	1,100	1,200	58	77	102	1.21	.50	.80
Nevada	160	190	100	25	12	9	1.13	.56	.75
North Carolina	1,470	2,600	2,800	150	182	224	1.00	.60	.80
Oklahoma	470	560	600	37	45	45	.98	.55	.70
South Carolina	740	2,000	2,500	74	190	[3] 225	1.10	.50	.45
Texas, other	3,790	7,300	2,900	[3] 282	[3] 387	218	.84	.40	.75
Total	36,400	47,780	30,700	[3] 5,256	[3] 5,663	[3] 3,609	1.12	.53	.66
Intermediate:									
Delaware	2,220	2,700	3,000	232	338	360	1.13	.65	.75
Illinois	790	1,070	1,200	68	96	108	1.51	.80	.40
Indiana	4,440	4,610	5,300	428	507	450	1.47	.90	.65
Maryland	6,900	8,100	7,700	642	834	847	1.43	.86	.50
New Mexico	1,870	3,400	2,000	227	[3] 391	[3] 220	1.15	.80	.75
Tennessee	290	240	240	21	18	18	1.37	.90	.75
Washington	1,820	1,650	1,650	227	198	223	1.08	.60	.45
Total	18,330	21,770	21,090	1,845	[3] 2,382	[3] 2,226	1.33	.81	.58
Late:									
Colorado	10,040	7,370	8,820	1,674	1,106	1,499	.97	.70	.55
Iowa	730	900	1,100	66	90	88	1.20	.50	.60
Kansas	450	450	450	51	54	47	.97	.65	.55
Michigan	3,080	4,200	4,600	336	420	506	1.35	1.10	.85
Nevada	270	260	50	40	24	8	1.34	.50	1.00
New Jersey	3,320	5,000	4,750	401	625	499	1.04	.63	.90
Ohio	[4] 400	650	700	[4] 42	72	63	[4] 1.56	.80	1.10
Oregon	[4] 700	600	600	[4] 101	96	108	[4] 1.00	.60	.55
Utah		700	250		54	33		.42	.55
Total	18,600	20,130	21,320	2,662	2,541	2,851	1.04	.73	.68
Grand total	116,920	135,780	109,050	[3] 16,362	[3] 17,021	[3] 12,762	1.26	.83	.81

[1] Includes Honey Ball, Honey Dew, Casaba, and Persian melons not separately reported.
[2] Standard crates (45's) containing approximately 60 pounds.
[3] Includes some quantities not harvested on account of market conditions: Arizona, 360,000 crates in 1932 and 414,000 crates in 1933; California, Imperial, 1,693,000 crates in 1932 and 357,000 crates in 1933 and other, 758,000 crates in 1932; Texas, other, 433,000 crates in 1931 and 182,000 crates in 1932; New Mexico, 109,000 crates in 1932 and 55,000 crates in 1933; South Carolina, 37,000 crates in 1933. Price refers to harvested portion of crop.
[4] Short-time average.

Bureau of Agricultural Economics; estimates based upon returns from crop reporters.

TABLE 187.—*Cantaloups:*[1] *Car-lot shipments, by State of origin, 1922–33*

State	Crop-movement season [2]											
	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933 [3]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Indiana	894	681	822	1,089	629	415	465	389	184	278	239	136
Michigan	465	306	114	146	84	77	52	16	13	16	13	29
Delaware	843	818	511	657	551	427	427	285	193	233	190	172
Maryland	1,233	1,270	699	1,116	1,283	1,159	1,002	561	274	347	264	116
North Carolina	700	620	401	655	401	606	304	88	19	110	180	178
South Carolina	270	70	116	33	173	179	94	44	125	89	224	319
Georgia	1,632	217	586	117	136	108	104	76	138	83	83	120
Arkansas	1,002	337	1,052	1,245	1,127	788	854	413	245	443	541	119
Texas	186	387	456	498	514	242	244	176	358	758	583	399
Colorado	4,420	2,306	3,229	3,837	5,108	3,980	2,789	4,664	4,088	2,790	2,555	2,520
New Mexico	275	364	518	574	640	415	370	352	416	612	560	234
Arizona	1,558	1,208	2,145	3,833	3,712	5,217	5,901	5,457	5,834	4,542	3,109	1,922
Washington	371	207	298	221	145	252	258	382	282	150	105	36
California	15,304	16,486	19,930	18,707	18,320	22,406	25,307	26,850	23,626	25,707	17,269	12,595
Other States	777	646	617	1,091	601	486	523	289	384	424	407	252
Total	29,930	25,923	31,494	33,819	33,424	36,757	38,694	40,042	36,179	36,582	26,322	19,147

[1] Includes Honey Ball, Honey Dew, Casaba, and Persian melons. Melons other than cantaloups were not reported separately until 1923. Shipments are as follows: 1923, 1,152 cars; 1924, 2,565 cars; 1925, 3,654 cars 1926, 6,484 cars; 1927, 6,516 cars; 1928, 9,719 cars; 1929, 11,894 cars; 1930, 12,352 cars; 1931, 12,207 cars; 1932, 9,107 cars; and 1933, 6,599 cars.

[2] Crop-movement season extends from April through November of a given year. Figures for California include shipments in December, following the regular crop-movement season.

[3] *Preliminary.*

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.

Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 188.—*Carrots, commercial crop for market:*[1] *Acreage, production, and season average price (to Dec. 1) per bushel received by producers; average 1927–31, annual 1932 and 1933*

Marketing season	Acreage			Production			Price for crop of—		
	Average 1927-31	1932	1933	Average 1927-31	1932	1933	Average 1927-31	1932	1933
	Acres	*Acres*	*Acres*	*1,000 bu.*[2]	*1,000 bu.*[2]	*1,000 bu.*[2]	*Dollars*	*Dollars*	*Dollars*
Fall	2,780	3,370	5,030	1,545	1,887	2,485	0.68	0.82	0.54
Early	7,680	8,950	11,300	[3] 1,765	1,523	1,573	.36	.84	.18
Second early	8,460	9,430	8,770	[3] 3,172	3,918	3,637	.63	.64	.58
Intermediate	1,980	1,860	1,650	[3] 501	[3] 486	458	.88	.59	.72
Late	4,740	6,240	5,680	2,274	[3] 3,001	2,412	.57	.26	.39
Total	25,640	29,850	32,430	[3] 9,257	[3] 10,815	10,565	.58	.60	.47

[1] Including undetermined quantities used for canning in some States.

[2] Bushels containing approximately 50 pounds.

[3] Includes some quantities not harvested on account of market conditions: 300,000 bushels in 1929; 44,000 bushels in 1930; 1,634,000 bushels in 1931, and 375,000 bushels in 1932. Price refers to harvested portion of crop.

Bureau of Agricultural Economics; estimates based upon returns from crop reporters.

TABLE 189.—*Carrots: Car-lot shipments, by State of origin, 1922–32*

State	Crop-movement season [1]										
	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
New York	1, 523	1, 410	2, 262	1, 825	1, 845	2, 430	1, 484	2, 111	2, 188	1, 882	1, 537
New Jersey	26	34	18	48	45	85	67	12	14	3	5
Illinois	82	24	3	23	2	13	96	33	37	38	14
Michigan	25	35	55	54	77	91	208	204	141	319	92
Virginia	10	2	1	40	10	44	137	110	67	47	6
Mississippi	304	142	266	197	209	496	230	108	28	12	7
Louisiana	62	58	32	106	70	177	99	71	84	41	17
Texas	48	65	282	575	1, 136	903	1, 685	2, 860	2, 145	1, 181	1, 492
Colorado	4	12	26	29	62	10	216	96	43	44	3
California	21	24	157	278	557	2, 363	2, 938	6, 095	7, 206	7, 403	6, 317
Other States	151	173	212	252	291	241	295	449	439	544	475
Total	2, 256	1, 979	3, 314	3, 427	4, 304	6, 853	7, 455	12, 149	12, 392	11, 514	9, 965

[1] Crop-movement season covers 21 months, beginning in October of the previous year in such early shipping States as California, Louisiana, and Texas, and extending through June of the following year, i.e., the 1922 season begins in October 1921, and ends in June 1923, in order to include shipments from storage in Northern States and to have season comparable with acreage and production.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 190.—*Cauliflower, commercial crop: Acreage, production, and season average price per crate received by producers; average 1927–31, annual 1932 and 1933*

Marketing season	Acreage			Production			Price for crop of—		
	Average 1927–31	1932	1933	Average 1927–31	1932	1933	Average 1927–31	1932	1933
	Acres	*Acres*	*Acres*	*1,000 crates* [1]	*1,000 crates* [1]	*1,000 crates* [1]	*Dollars*	*Dollars*	*Dollars*
Fall and winter	6, 050	10, 190	11, 000	1, 744	2, 780	[2] 2, 696	0. 90	0. 64	0. 57
Early	8, 980	8, 640	7, 250	2, 377	2, 123	1, 870	. 87	. 66	. 52
Late	9, 580	12, 970	11, 900	1, 901	[2] 2, 827	2, 596	1. 07	. 60	. 73
Total	24, 610	31, 800	30, 150	5, 982	[2] 7, 730	[2] 7, 162	. 92	. 63	. 62

[1] Crates containing approximately 37 pounds.
[2] Includes some quantities not harvested on account of market conditions: 176,000 crates in 1932, and 160,000 crates in 1933. Price refers to harvested portion of crop.
Bureau of Agricultural Economics; estimates based upon returns from crop reporters.

TABLE 191.—*Celery, commercial crop: Acreage, production, and season average price (to Dec. 1) per crate received by producers; average 1927–31, annual 1932 and 1933*

Marketing season	Acreage			Production			Price for crop of—		
	Average 1927–31	1932	1933	Average 1927–31	1932	1933	Average 1927–31	1932	1933
	Acres	*Acres*	*Acres*	*1,000 crates* [1]	*1,000 crates* [1]	*1,000 crates* [1]	*Dollars*	*Dollars*	*Dollars*
Fall and winter	7, 220	6, 800	3, 500	1, 350	1, 156	693	1. 21	1. 69	1. 19
Early	6, 990	8, 520	8, 830	2, 631	2, 599	[2] 2, 621	2. 19	2. 00	1. 15
Second early	730	1, 800	1, 500	441	[2] 857	644	1. 90	. 60	1. 98
Intermediate	3, 200	3, 590	3, 780	873	945	902	1. 68	1. 10	1. 07
Late (section 1)	11, 040	13, 200	12, 100	3, 212	[2] 3, 826	3, 345	1. 42	. 58	1. 28
Late (section 2)	1, 210	1, 690	1, 540	352	511	419	1. 49	1. 06	1. 32
Total	30, 390	35, 600	31, 250	8, 859	[2] 9, 894	[2] 8, 624	1. 68	1. 17	1. 27

[1] ⅝ size (New York) crates containing approximately 90 pounds.
[2] Includes some quantities not harvested on account of market conditions: 249,000 crates in 1932, and 197,000 crates in 1933. Price refers to harvested portion of crop.
Bureau of Agricultural Economics; estimates based upon returns from crop reporters.

TABLE 192.—*Celery: Car-lot shipments, by State of origin, 1922–32*

State	Crop-movement season [1]										
	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
New York	3,247	3,742	4,529	4,492	4,898	5,893	4,192	3,847	5,451	3,875	4,688
New Jersey	115	219	177	149	138	106	32	53	32	25	32
Pennsylvania	212	223	225	208	194	169	71	105	81	61	36
Michigan	1,626	1,486	1,332	2,224	1,880	1,997	2,139	1,852	1,606	1,304	861
Florida	4,954	6,398	7,219	7,952	5,504	7,499	8,413	8,831	9,838	8,245	7,931
Idaho	26	49	48	29	19	46	121	262	287	97	99
Colorado	222	125	197	399	211	161	188	149	136	53	80
Oregon	82	205	363	398	511	625	605	673	647	622	412
California	2,625	4,419	4,748	4,554	6,226	7,696	8,384	9,580	8,480	8,358	7,834
Other States	102	82	99	109	80	125	135	138	69	100	82
Total	13,211	16,948	18,937	20,514	19,661	24,317	24,280	25,490	26,627	22,740	22,055

[1] Crop-movement season covers 20 months, from September through the second following April; i.e., the 1922 season begins September 1921, and ends April 1923.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 193.—*Cherries: Production in 12 States [1] and average price per ton received by producers, average 1926–30, annual 1932 and 1933*

State	Production			Price for crop of—		State	Production			Price for crop of—	
	Average, 1926–30	1932	1933 [2]	1932	1933 [2]		Average 1926–30	1932	1933 [2]	1932	1933 [2]
	Short tons	*Short tons*	*Short tons*	*Dollars*	*Dollars*		*Short tons*	*Short tons*	*Short tons*	*Dollars*	*Dollars*
N.Y.	15,234	[3] 25,627	10,754	45	60	Colo.	4,470	3,825	1,976	52	54
Pa.		9,150	4,375	40	55	Utah	4,080	4,200	3,078	60	65
Ohio		3,240	2,806	40	55	Wash.	11,270	16,125	16,330	45	50
Mich.	15,032	23,380	25,697	35	55	Oreg.	11,808	12,025	12,240	45	50
Wis.	6,580	6,864	7,040	20	50	Calif.	16,860	[3] 18,500	[3] 24,500	60	66
Mont.	429	780	735	50	55						
Idaho	2,780	3,402	2,967	40	50	12 States	91,271	[3] 127,118	[3] 112,498	43.72	56.36

[1] Estimates include only certain States where total production can be calculated from commercial sales (shipments, canning, cold pack, etc.) and differ from previously published commercial estimates for some States by an increased allowance for farm and local use.
[2] Preliminary.
[3] Includes some quantities not harvested on account of price as follows: New York, 1932, 6,663 tons; California, 1932, 2,500 tons; 1933, 500 tons.

Bureau of Agricultural Economics; production figures are estimates of the Crop Reporting Board. Estimates of production for 1929–32 revised on basis of 1930 census. Earlier years not so revised.

Table 194.—*Citrus fruit production and average price per box received by producers, by States, 1899, 1909, and 1919–33* [1]

Year	Oranges: Total production: California	Florida [2]	Texas	Arizona	Alabama [3]	Louisiana	Mississippi	7 States	Oranges: Price per box [4]: California	Florida	Texas	Arizona	Alabama	Louisiana	Mississippi	7 States
	1,000 boxes	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
1899 [5]	5,882	273	----	11	(6)	1	----	6,167	----	----	----	----	----	----	----	----
1909 [5]	14,440	4,888	11	33	1	152	5	19,530	----	----	----	----	----	----	----	----
1919	15,528	7,533	9	80	20	37	31	23,238	2.75	4.05	----	----	----	----	----	----
1920	22,547	9,457	----	60	82	42	25	32,213	2.18	2.48	----	----	----	----	----	----
1921	13,921	8,871	----	80	82	50	30	23,034	2.80	3.65	----	----	----	----	----	----
1922	21,286	10,897	4	81	190	60	45	32,563	2.00	2.85	----	----	----	----	----	----
1923	24,324	13,262	6	86	225	75	55	38,033	2.00	1.80	----	----	----	----	----	----
1924	18,535	11,639	12	60	2	75	----	30,323	3.55	3.18	2.00	3.50	4.00	2.20	----	3.40
1925	24,200	10,344	10	86	130	100	27	34,897	2.84	3.03	2.50	3.00	3.00	2.70	3.00	2.90
1926	28,167	11,512	41	75	75	150	42	40,062	3.05	2.41	2.50	3.10	3.00	2.60	3.00	2.86
1927	22,737	9,933	70	54	110	200	50	33,154	4.00	3.60	1.90	4.00	4.00	4.00	4.00	3.88
1928	38,994	15,116	115	99	85	220	30	54,659	2.05	1.83	1.55	3.30	3.00	3.00	3.00	2.00
1929	21,483	10,304	261	137	212	187	37	32,621	3.90	2.92	2.10	3.80	2.50	3.35	2.55	3.56
1930	35,470	19,211	250	139	3	195	2	55,270	1.50	1.90	1.55	1.50	2.00	2.05	2.00	1.64
1931	34,900	14,220	520	145	80	245	54	50,164	1.10	1.90	1.05	1.25	1.75	1.75	1.75	1.33
1932	33,827	16,200	315	147	120	241	80	50,930	1.00	1.28	1.35	.95	1.95	1.25	1.60	1.10
1933 [7]	32,547	15,100	209	143	3	212	2	48,216	1.05	1.25	1.00	1.00	2.00	1.00	1.85	1.11

Year	Grapefruit: Total production: Florida [2]	California	Texas	Arizona	4 States	Grapefruit: Price per box [4]: Florida	California	Texas	Arizona	4 States	Lemons: Production: California	Lemons: Price per box [4]: California	Limes: Production: Florida	Limes: Price per box [4]: Florida
	1,000 boxes	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*1,000 boxes*	*Dollars*	*1,000 boxes*	*Dollars*
1899 [5]	12	18	----	1	31	----	----	----	----	----	874	----	----	----
1909 [5]	1,062	123	(6)	1	1,186	----	----	----	----	----	2,756	----	11	----
1919	5,898	363	3	29	6,293	----	----	----	----	----	3,499	2.00	28	3.45
1920	6,142	395	----	34	6,571	----	----	----	----	----	4,955	2.92	26	3.10
1921	6,644	360	----	35	7,039	----	----	----	----	----	4,050	3.45	33	2.75
1922	7,766	394	35	60	8,255	----	----	----	----	----	3,400	3.30	35	2.90
1923	8,936	363	65	95	9,459	----	----	----	----	----	6,732	1.60	40	3.00
1924	8,760	387	211	105	9,463	1.61	3.55	2.00	3.50	1.72	5,125	3.48	36	3.00
1925	8,316	600	200	150	9,266	2.75	2.84	2.50	3.00	2.75	7,316	2.11	30	4.00
1926	8,693	672	361	120	9,846	1.94	2.35	2.50	2.50	2.00	7,712	2.81	12	6.50
1927	8,158	720	524	176	9,578	2.88	3.80	1.90	3.80	2.91	6,000	3.80	0	----
1928	11,314	972	753	211	13,250	1.65	2.50	1.60	3.50	1.74	7,900	2.60	6	4.50
1929	8,274	1.000	1,530	365	11,169	2.44	2.65	2.15	2.50	2.42	5,900	3.70	8	5.50
1930	16,109	1,290	1,135	400	18,934	1.20	1.25	1.15	1.50	1.21	7,950	2.35	8	5.00
1931	10,786	1,655	2,480	450	15,371	1.19	1.00	.55	.90	1.06	7,800	1.95	9	4.50
1932	11,800	1,670	1,385	614	15,469	.81	.80	1.10	.75	.83	6,715	2.10	10	4.00
1933 [7]	9,800	1,654	740	495	12,689	.99	.90	.90	.90	.97	6,800	2.10	8	3.00

1 The figures in this table of production included fruit consumed on farms, sold locally, and used for manufacturing purposes, as well as that shipped. The figures do not include fruit which ripened on the trees, but which was destroyed by freezing or storms prior to picking. For California the figures relate to the crop produced from the bloom of the year shown, fruiting through the winter and through the spring and summer of the following year, being picked from Nov. 1 of the year shown to Oct. 31 of the following year. Fruit not picked until after the latter date is included with the crop of the following year. For all States except California the estimates include all fruit picked after about Sept. 1 of the year shown. The estimates for oranges include tangerines.

2 From prospects on Dec. 1, commercial shipments of Florida citrus fruits from the 1933 crop were estimated at 13,900,000 boxes of oranges, and 7,000,000 boxes of grapefruit, compared with 15,000,000 boxes of oranges and 8,400,000 boxes of grapefruit shipped from the 1932 crop. Commercial estimates and forecasts include allowance for truck shipments.

3 For years 1919–33, equivalent in standard boxes, each equal to about 2 of the "half straps" commonly used.

4 Season average prices, 1919–32; season average price to Dec. 1, 1933. California prices are for naked fruit at the packing-house door; Florida prices are for packed boxes minus selling charges on the commercial crop so handled and bulk prices for other commercial and noncommercial marketings; Florida lime prices, 1919–23, are Dec. 1 prices.

5 Census. Size of boxes not specified.

6 500 boxes or less.

7 As estimated from prospects on Dec. 1.

Bureau of Agricultural Economics; production figures are estimates of the Crop Reporting Board, revised 1919–28 (see introductory text).

TABLE 195.—*Citrus fruit: Car-lot shipments, by State of origin, 1922–23 to 1932–33*

ORANGES [1]

State	Crop movement season [2]										
	1922–23	1923–24	1924–25	1925–26	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33 [3]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
California	48, 346	44, 905	34, 439	47, 017	53, 511	43, 693	68, 797	43, 053	64, 774	61, 615	56, 293
Florida	23, 006	33, 431	25, 091	19, 625	22, 536	16, 453	32, 550	17, 312	33, 915	22, 769	30, 017
Alabama	476	600	2	338	179	312	97	485	2	175	227
Mississippi	9	13	------	8	4	15	5	25	1	40	48
Louisiana	------	3	2	1	1	251	264	278	155	84	85
Texas	------	3	3	6	9	26	33	156	119	200	102
Arizona	71	94	45	96	73	33	66	90	90	66	106
Total	71, 908	79, 049	59, 582	67, 091	76, 313	60, 783	101, 812	61, 399	99, 056	84, 949	86, 878

GRAPEFRUIT

State	1922–23	1923–24	1924–25	1925–26	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33
Florida	16, 969	19, 614	20, 087	14, 269	17, 304	14, 166	21, 844	13, 955	26, 081	17, 661	17, 329
Texas	48	99	521	298	747	1, 036	1, 617	3, 493	2, 247	5, 329	2, 679
California	567	446	431	558	593	780	780	1, 194	1, 220	1, 651	1, 035
Arizona	103	155	159	218	210	211	272	417	436	296	407
Louisiana	------	------	------	------	------	------	------	1	2	------	------
Total	17, 687	20, 314	21, 198	15, 343	18, 854	16, 193	24, 513	19, 060	29, 986	24, 937	21, 450

LEMONS

State	1922–23	1923–24	1924–25	1925–26	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33
California	8, 946	13, 388	11, 680	13, 981	13, 529	12, 745	17, 181	13, 564	18, 377	15, 710	14, 679
Texas	------	1	[4] 2	------	------	------	------	------	------	------	------
Arizona	1	2	1	1	------	------	------	2	1	2	2
Total	8, 947	13, 391	11, 683	13, 982	13, 529	12, 745	17, 181	13, 566	18, 378	15, 712	14, 681

MIXED CITRUS

State	1922–23	1923–24	1924–25	1925–26	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33
Florida	2, 631	3, 608	4, 226	3, 565	5, 313	6, 225	9, 109	8, 216	14, 687	8, 825	8, 393
Californa	1, 033	1, 424	1, 148	1, 605	1, 639	1, 590	1, 783	1, 343	1, 626	1, 666	1, 690
Texas	18	1	18	------	22	92	185	501	288	520	275
Arizona	3	------	10	1	10	11	24	48	29	16	1
Louisiana	------	------	------	------	------	1	1	10	155	87	108
Total	3, 685	5, 033	5, 402	5, 171	6, 984	7, 919	11, 102	10, 118	16, 785	11, 114	10, 467

[1] Includes tangerines and satsumas.
[2] Crop movement season extends as follows: California, from Nov. 1 through October of the following year; all other States from Sept. 1 through August of the following year, except lemons from Nov. 1 through October of the following year.
[3] Preliminary.
[4] Reported in October 1924.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.

Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 196.—*Grapefruit, Florida: Weighted average auction price per box, New York, by months, 1924–25 to 1933–34*

Year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924–25	------	------	------	------	2. 83	2. 83	2. 71	3. 78	4. 38	5. 94	(1)	------	------
1925–26	------	4. 96	3. 97	3. 95	4. 01	4. 03	4. 61	5. 16	4. 70	4. 74	5. 51	------	4. 38
1926–27	------	5. 35	4. 07	3. 40	3. 58	3. 75	3. 67	3. 59	3. 66	3. 80	2. 44	------	3. 66
1927–28	------	4. 60	4. 70	4. 71	4. 82	5. 07	5. 52	5. 45	4. 92	3. 93	6. 28	4. 51	4. 93
1928–29	------	4. 41	4. 25	3. 44	3. 52	3. 20	3. 30	3. 32	3. 83	4. 71	6. 36	------	3. 70
1929–30	5. 80	4. 51	4. 23	4. 26	4. 43	4. 09	4. 78	5. 09	4. 25	3. 24	3. 10	------	4. 42
1930–31	4. 03	3. 64	3. 00	2. 82	2. 56	2. 43	2. 50	2. 76	2. 57	2. 06	1. 17	------	2. 69
1931–32	4. 32	3. 09	2. 60	2. 26	2. 14	1. 97	2. 23	2. 76	3. 44	3. 76	3. 12	------	2. 53
1932–33	3. 61	3. 65	3. 01	2. 28	2. 24	2. 04	1. 83	1. 72	1. 71	1. 54	1. 55	1. 92	[2] 2. 04
1933–34	3. 12	2. 62	2. 24	2. 33	------	------	------	------	------	------	------	------	------

[1] Reported for 1 week only. [2] Includes a price in September 1933 of $2.

Bureau of Agricultural Economics; compiled from reports of California Fruit Growers Exchange. Prices weighted by number of boxes sold.

These prices are a new series and are not comparable with those published in Yearbooks prior to 1930.

TABLE 197.—*Grapefruit: Fresh fruit produced and quantity canned in Florida, and receipts of canned grapefruit from Puerto Rico, 1921–22 to 1932–33*

Season	Florida pack, canned fruit			Total Florida production, fresh fruit	United States receipts of canned grapefruit from Puerto Rico[1]	
	Grapefruit hearts	Grapefruit juice	Total pack			
	Cases [2]	*Cases* [2]	*Cases* [2]	*Boxes*	*Pounds*	*Equivalent cases* [2]
1921–22	10,000	----------	10,000	6,644,000	----------	----------
1922–23	150,000	----------	150,000	7,766,000	----------	----------
1923–24	200,000	----------	200,000	8,936,000	3,861,555	128,718
1924–25	350,000	----------	350,000	8,760,000	3,840,819	128,027
1925–26	400,000	----------	400,000	8,316,000	6,348,020	211,601
1926–27	700,000	----------	700,000	8,693,000	9,262,394	308,746
1927–28	600,000	----------	600,000	8,158,000	10,733,709	357,790
1928–29	957,000	205,000	1,162,000	11,314,000	2,832,310	94,410
1929–30	1,316,738	173,934	1,490,672	8,274,000	12,415,247	413,842
1930–31	2,712,489	412,066	3,124,555	16,109,000	5,931,578	197,719
1931–32	907,323	247,652	1,154,975	10,786,000	4,483,485	149,450
1932–33	[3] 1,922,532	[3] 606,469	[3] 2,529,001	11,800,000	1,289,574	42,986

[1] Year beginning July; reports of Bureau of Foreign and Domestic Commerce.
[2] Cases on basis of 24 No. 2 cans.
[3] Preliminary estimate of Florida Grapefruit Canners Association; there are some canners outside the association.

Bureau of Agricultural Economics.

Figures on the Florida pack of canned grapefruit were obtained as follows: 1921–22 to 1927–28, averages of various trade estimates; 1928–29, estimated by the Florida Grapefruit Canners Association; 1929–30 to 1931–32, complete surveys made by the Bureau of Foreign and Domestic Commerce; 1932–33, preliminary report of the pack of the Florida Grapefruit Canners Association, subject to revision. A box of fresh fruit in Florida is estimated to pack slightly more than a case of canned fruit.

Some grapefruit also is canned in Texas, Arizona, and California. Considerable quantities are exported from the United States, and Puerto Rico also ships to foreign countries.

TABLE 198.—*Lemons, California: Weighted average auction price per box, New York, by months, 1924–25 to 1933–34*

Year	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924–25	------	------	4.47	4.45	4.59	4.75	5.73	6.84	4.66	4.67	8.55	6.83	------
1925–26	4.13	4.46	3.91	4.16	5.40	4.12	4.83	3.79	4.83	4.38	3.56	4.50	4.35
1926–27	3.82	4.03	4.20	3.43	3.90	3.50	3.89	4.50	6.44	6.37	8.82	9.27	4.64
1927–28	6.92	6.13	6.33	6.03	5.19	5.54	6.42	6.04	6.97	6.11	5.59	5.19	6.07
1928–29	4.90	5.62	5.26	3.95	4.07	4.55	3.82	6.89	5.39	7.82	11.87	11.22	6.82
1929–30	8.70	8.63	5.68	5.06	4.81	5.51	7.24	6.15	7.26	7.93	5.36	4.23	6.42
1930–31	4.18	4.52	4.89	4.08	4.47	4.06	4.43	5.05	6.57	6.55	7.28	5.66	5.30
1931–32	3.98	4.04	3.87	3.81	3.80	3.27	4.96	4.47	5.16	7.03	8.56	8.48	5.09
1932–33	5.40	5.12	4.80	3.47	3.89	3.99	4.95	5.81	4.35	4.36	4.40	4.86	4.71
1933–34	3.95	4.24	------	------	------	------	------	------	------	------	------	------	------

Bureau of Agricultural Economics. Compiled from reports of California Fruit Growers Exchange. Prices weighted by number of boxes sold. These prices are a new series and are not comparable with those published in Yearbooks prior to 1930.

TABLE 199.—*Oranges, California, Valencia: Weighted average auction price per box, New York, by months, 1925–33*

Season	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
1925	4.80	6.28	7.43	6.40	6.47	7.58	8.23	9.90	--------	7.15
1926	4.92	4.58	4.46	5.21	4.89	5.39	6.44	6.79	6.69	5.28
1927	4.66	4.43	4.98	5.90	6.15	6.73	7.02	6.71	5.75	6.00
1928	5.94	7.38	7.22	7.58	7.45	7.77	7.53	6.79	--------	7.45
1929	[1]	4.40	4.58	4.13	4.85	4.73	4.85	4.77	4.85	4.63
1930	6.59	7.97	7.19	7.36	7.33	7.29	8.69	7.78	--------	7.59
1931	--------	3.42	3.62	4.31	3.81	3.86	4.50	3.79	2.98	[2] 3.97
1932	2.85	3.43	3.28	3.62	3.05	3.42	3.43	3.77	4.07	3.41
1933	--------	3.06	2.86	3.24	3.21	3.47	3.36	2.81	1.89	[2] 3.12

[1] Reported for 1 week only.
[2] Average for months shown.

Bureau of Agricultural Economics; compiled from reports of California Fruit Growers Exchange. Prices weighted by number of boxes sold.

These prices are a new series and are not comparable with those published in Yearbooks prior to 1930.

TABLE 200.—*Oranges: International trade, average 1925–29, annual 1929–32*

Country	Average 1925–29 Exports	Average 1925–29 Imports	1929 Exports	1929 Imports	1930 Exports	1930 Imports	1931 Exports	1931 Imports	1932[1] Exports	1932[1] Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*
Spain	20,935	1	22,407	1	30,654	0	24,173	1	24,902	2
Italy	3,435	0	2,613	0	3,744	0	3,431	0	1,739	1
United States	3,285	14	5,512	0	2,236	0	4,849	0	3,129	0
Palestine	[2] 2,123	0	1,813	0	2,998	0	2,667	0	3,553	0
Union of South Africa	734	0	1,002	0	1,763	0	1,675	0	1,702	0
Brazil	571	0	1,096	0	812	0	2,054	0	1,930	0
Japan	449	0	440	0	378	0	263	0	412	0
Cuba	120	0	0	0	9	0	1	0	------	------
Total	31,652	15	34,883	1	42,594	0	39,113	1	37,367	3
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	0	11,307	0	12,859	0	13,774	0	14,310	0	12,957
Germany	0	6,259	0	6,741	0	9,946	0	7,851	0	6,705
France [3]	81	3,793	23	3,572	24	5,649	48	5,778	58	6,797
Canada	0	2,237	0	3,128	0	2,163	0	------	0	2,171
Netherlands	591	1,833	743	2,027	821	2,581	616	2,316	289	2,229
Belgium	------	[2] 875	(4)	1,011	(4)	1,913	(4)	1,893	------	------
China	292	462	353	549	328	315	329	218	339	298
Switzerland	0	440	0	476	0	652	1	708	0	679
Czechoslovakia	0	416	0	390	0	791	0	788	0	567
Norway [3]	0	391	0	434	0	549	0	503	0	558
Sweden	0	357	0	440	1	747	1	797	4	751
Egypt	4	345	5	264	5	382	5	112	0	70
Hungary	0	293	0	296	0	415	0	336	0	240
Poland	0	256	0	123	1	146	0	122	0	83
Irish Free State	0	255	0	282	0	325	0	332	0	336
Denmark	0	234	0	241	0	299	0	289	0	293
Yugoslavia	0	161	0	180	0	253	0	216	0	156
Total	968	29,914	1,124	33,013	1,180	40,900	1,000	36,569	690	34,890

[1] Preliminary.
[2] 4-year average.
[3] Includes some lemons.
[4] Included with lemons.

Bureau of Agricultural Economics; official sources.

TABLE 201.—*Oranges, California, Navel: Weighted average auction price per box, New York, by months, 1924–25 to 1933–34*

Season	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Average
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
1924–25	------	------	4.64	4.47	5.35	5.48	6.51	6.21	------
1925–26	8.00	4.56	4.24	4.55	4.70	5.50	4.73	5.56	4.80
1926–27	6.32	5.06	4.69	4.71	4.54	4.89	4.43	5.60	4.74
1927–28	(1)	5.55	4.56	5.18	5.52	5.98	7.39	------	[2] 5.61
1928–29	5.72	4.46	4.84	3.89	3.52	4.06	3.56	3.56	4.10
1929–30	(1)	5.56	4.98	4.99	5.67	6.03	6.64	------	[2] 5.64
1930–31	5.23	3.58	3.45	3.27	3.42	3.32	3.93	(1)	[2] 3.54
1931–32	3.87	3.30	2.71	3.35	3.06	3.08	3.38	------	[2] 3.14
1932–33	3.05	2.78	2.84	2.73	2.55	2.47	2.83	3.02	2.73
1933–34	------	3.09	------	------	------	------	------	------	------

[1] Reported for 1 week only
[2] Average for months shown.

Bureau of Agricultural Economics; compiled from reports of California Fruit Growers Exchange. Prices weighted by number of boxes sold.
These prices are a new series and are not comparable with those published in Yearbooks prior to 1930.

TABLE 202.—*Oranges, Florida: Weighted average auction price per box, New York, by months, 1924–25 to 1933–34*

Season	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average [1]
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
1924–25	--------	--------	--------	3.68	4.26	5.69	6.43	7.82	8.26	8.49	--------
1925–26	7.45	7.19	4.00	4.25	4.44	5.02	5.80	5.87	6.72	--------	5.10
1926–27	3.70	4.79	3.53	3.76	3.91	4.10	4.86	4.75	4.54	3.12	4.11
1927–28	3.67	6.31	5.59	5.23	5.97	6.29	6.84	8.58	9.11	--------	6.24
1928–29	5.08	3.71	3.55	3.45	3.30	3.30	3.55	3.33	2.99	2.92	3.40
1929–30	3.42	4.04	4.21	4.49	4.44	4.98	7.13	7.42	6.60	--------	4.94
1930–31	4.76	3.45	3.01	2.91	3.19	3.79	3.80	3.85	4.02	4.62	3.54
1931–32	2.64	3.20	3.11	3.10	3.38	3.55	3.75	3.63	3.59	4.38	3.43
1932–33	2.88	3.21	2.79	2.81	2.31	2.32	2.17	2.17	2.21	2.78	2.43
1933–34	2.47	2.49	2.36	--------	--------	--------	--------	--------	--------	--------	--------

[1] Includes prices in other months as follows: 1928–29, $2.29 in August 1929; 1930–31, $2.61 in September 1930, 1932–33, $3.69 in August 1933; 1933–34, $2.46 in September 1933.

Bureau of Agricultural Economics; compiled from reports of California Fruit Growers Exchange. Prices weighted by number of boxes sold.

These prices are a new series and are not comparable with those published in Yearbooks prior to 1930.

TABLE 203.—*Corn, sweet, commercial crop for manufacture: Acreage, production, and season average price per ton received by producers, by States; average 1927–31, annual 1932 and 1933*

State	Acreage			Production			Price for crop of—		
	Average 1927–31	1932	1933	Average 1927–31	1932	1933	Average 1927–31	1932	1933
	Acres	*Acres*	*Acres*	*Short tons* [1]	*Short tons* [1]	*Short tons* [1]	*Dollars*	*Dollars*	*Dollars*
Maine	11,460	8,600	8,800	36,800	29,200	29,900	23.50	11.40	12.80
New Hampshire	1,030	620	570	2,700	1,600	1,500	22.10	11.80	13.90
Vermont	1,910	750	870	4,600	1,800	2,300	17.10	11.40	10.90
New York	22,440	11,000	12,700	35,700	20,900	20,300	16.10	9.60	10.90
Pennsylvania	4,950	1,800	1,800	5,600	3,100	2,700	14.00	8.40	9.60
Ohio	28,100	8,800	10,200	47,900	17,600	18,400	10.60	5.00	6.90
Indiana	33,680	22,000	26,600	52,200	50,600	34,600	12.10	7.20	7.80
Illinois	60,990	35,000	45,600	129,800	91,000	77,500	12.00	7.30	7.60
Michigan	7,790	3,600	2,900	9,700	4,300	2,300	12.50	7.50	10.50
Wisconsin	12,460	2,400	4,200	25,500	5,500	10,100	11.00	7.00	7.20
Minnesota	41,580	33,500	34,000	92,700	93,800	98,600	10.30	7.10	7.20
Iowa	45,080	6,800	18,700	104,000	17,000	41,100	9.60	5.30	5.60
Nebraska	5,990	3,400	3,900	10,800	6,500	7,000	9.30	5.80	7.40
Delaware	3,700	2,000	2,000	7,200	3,600	4,000	11.80	6.50	8.70
Maryland	36,160	20,500	19,600	51,900	30,800	35,300	13.40	6.80	8.50
Tennessee	[2] 3,380	1,400	730	[2] 7,000	4,100	2,300	[2] 14.70	9.80	7.60
Other States [3]	3,780	2,760	2,920	8,200	5,500	5,100	13.32	8.91	8.24
Total	323,780	164,930	196,090	630,900	386,900	393,000	12.40	7.50	8.00

[1] Tonnage in husk. [2] Short-time average.

[3] Other States includes Colorado, Idaho, Kansas, Kentucky, Missouri, Montana, Oklahoma, Oregon, South Dakota, Utah, Virginia, Washington, and Wyoming.

Bureau of Agricultural Economics; estimates based upon returns from canning establishments.

TABLE 204.—*Corn, canned: Pack [1] in the United States, 1921–33*

State	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
	1,000 cases	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*
Maine	911	1,066	923	1,294	1,693	1,347	806	966	1,521	1,930	1,245	1,071	1,055
New York	564	616	434	749	1,311	1,038	676	666	782	647	1,080	496	584
Ohio	850	1,073	1,390	787	2,375	1,735	846	1,138	1,551	750	1,871	405	505
Indiana	709	665	1,208	846	2,223	2,044	703	1,131	1,250	1,272	2,362	1,139	838
Illinois	1,711	1,939	2,833	2,310	4,030	3,053	1,961	3,017	3,153	3,261	3,788	2,024	1,812
Wisconsin	576	625	648	388	1,148	843	310	578	547	686	712	140	279
Minnesota	573	598	898	1,199	1,541	1,762	1,088	1,648	2,604	2,912	1,835	2,018	2,350
Iowa	1,190	1,959	2,382	1,764	4,105	3,361	1,377	2,541	2,908	2,552	3,227	444	1,132
Maryland	1,130	1,944	2,256	1,707	3,678	2,133	1,493	1,648	1,865	622	1,956	801	942
Other States	629	934	1,134	1,087	2,216	1,753	1,087	1,164	1,306	1,060	1,339	820	696
United States	8,843	11,419	14,106	12,131	24,320	19,069	10,347	14,497	17,487	15,692	19,415	9,358	10,193

[1] Stated in cases of 24 No. 2 cans.

Bureau of Agricultural Economics; compiled from National Canners' Association data, 1921–26; Bureau of Census, 1927–29; beginning 1930, Foodstuffs Division, Bureau of Foreign and Domestic Commerce.

TABLE 205.—*Cranberries: Production and average price per barrel received by producers, by States, average 1926–30, annual 1932 and 1933*

State	Production			Price for crop of—	
	Average, 1926–30	1932	1933 [1]	1932	1933 [1]
	Barrels	*Barrels*	*Barrels*	*Dollars*	*Dollars*
Mass.	381,000	395,000	470,000	7.00	5.50
N.J.	131,400	80,000	142,000	7.00	5.50
Wis.	47,200	80,000	47,000	7.75	6.75
Wash.	14,816	7,536	4,800	8.50	7.95
Oreg.	5,560	2,300	3,900	8.50	7.95
U.S.	579,976	564,836	667,700	7.13	5.62

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 206.—*Cucumbers, commercial crop: Acreage, production, and season average price per bushel received by producers; average 1927–31, annual 1932 and 1933*

Utilization, marketing season, and State	Acreage			Production			Price for crop of—		
	Average 1927–31	1932	1933	Average 1927–31	1932	1933	Average 1927–31	1932	1933
	Acres	*Acres*	*Acres*	*1,000 bushels* [1]	*1,000 bushels* [1]	*1,000 bushels* [1]	*Dollars*	*Dollars*	*Dollars*
For market:									
Fall	1,180	1,350	1,600	96	79	101	2.46	1.99	1.50
Early (section 1)	14,350	12,950	10,400	[2] 1,260	[2] 798	484	2.00	1.10	1.58
Early (section 2)	12,040	11,750	10,070	[2] 1,402	[2] 961	758	.87	.54	.70
Second early	7,840	6,940	5,150	[2] 902	505	300	.93	.53	.53
Intermediate	7,380	7,520	8,060	1,024	786	907	.96	.67	.47
Late (section 1)	1,620	2,540	2,690	223	164	207	1.01	.60	.59
Late (section 2)	950	1,650	2,240	92	87	121	1.18	.95	.85
Total	45,360	44,700	40,210	[2] 4,999	[2] 3,380	2,878	1.22	.74	.79
For pickles:									
Massachusetts	[3] 630	600	600	[3] 81	84	120	[3] 0.67	0.40	0.30
New York	4,030	3,200	4,000	504	192	360	.87	.76	.50
Ohio	4,350	1,300	4,100	275	46	205	1.01	.62	.43
Indiana	9,190	3,000	4,700	486	66	179	.83	.40	.46
Illinois	1,310	780	1,460	66	49	110	1.01	.44	.52
Michigan	22,640	9,300	19,000	1,003	372	1,064	.85	.41	.43
Wisconsin	12,300	2,400	6,600	645	89	337	.97	.49	.40
Minnesota	3,500	450	1,220	139	14	39	.79	.45	.34
Iowa	2,270	1,360	1,860	98	75	97	.88	.38	.35
Missouri	1,950	100	640	63	6	10	.79	1.00	.30
Maryland	[3] 1,760	1,100	1,500	[3] 128	112	154	[3] .69	.37	.40
Virginia	[3] 1,600	2,300	3,000	[3] 145	140	258	[3] .71	.56	.55
Misssissippi	[3] 5,460	700	400	[3] 226	18	9	[3] .69	.28	.38
Louisiana	[3] 1,140	650	400	[3] 52	20	24	[3] .84	.40	.38
Texas	[3] 1,930	600	900	[3] 54	18	33	[3] .71	.36	.44
Colorado	2,410	510	460	243	61	80	.59	.36	.38
Washington	540	200	200	68	21	28	.72	.44	.45
Oregon	[3] 1,550	500	930	[3] 197	55	110	[3] .62	1.00	.50
California	2,780	700	1,050	515	117	143	.67	.39	.41
Other States [4]	6,530	3,160	3,340	427	272	299	.75	.69	.58
Total	84,000	32,910	56,360	5,161	1,827	3,659	.82	.52	.45

[1] Bushels containing approximately 48 pounds.
[2] Includes some quantities not harvested on account of market conditions: 1,551,000 bushels in 1930; 234,000 bushels in 1931, and 263,000 bushels in 1932. Price refers to harvested portion of crop.
[3] Short-time average.
[4] Other States includes Alabama, Connecticut, Delaware, Florida, Kentucky, Maine, Nebraska, New Jersey, North Carolina, Pennsylvania, South Dakota, Utah, and Wyoming.

Bureau of Agricultural Economics; estimates based upon returns from crop reporters.

TABLE 207.—*Cucumbers:* [1] *Car-lot shipments, by State of origin, 1922–33*

State	Calendar year											
	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
New York	395	383	694	686	456	607	1,001	529	907	714	574	699
New Jersey	164	258	276	481	261	368	370	161	117	149	57	32
Ohio [3]	124	68	111	91	187	203	191	119	131	208	104	74
Indiana [3]	18	6	16	57	104	135	147	126	63	35	21	10
Illinois [3]	68	15	77	245	150	101	148	118	254	151	94	65
Delaware	191	225	240	302	304	366	214	163	119	225	155	182
Maryland	368	446	311	598	479	692	563	469	527	680	280	483
Virginia	221	84	387	448	200	339	229	179	166	148	100	69
North Carolina	687	1,175	1,639	1,562	869	935	812	651	691	439	527	235
South Carolina	887	720	918	794	687	916	663	1,043	1,107	716	738	659
Georgia	211	45	154	72	62	72	76	135	162	82	159	216
Florida	2,034	1,647	1,381	1,963	2,048	2,300	1,572	2,271	1,137	1,463	699	679
Alabama	702	367	576	706	684	583	606	795	882	470	259	193
Arkansas	8	24	93	145	234	228	328	195	131	107	124	18
Louisiana	21	6	28	6	36	36	58	113	144	93	121	88
Texas	119	46	147	72	316	178	382	294	893	678	677	346
Other States	131	185	134	264	195	121	108	108	232	122	33	56
Total	6,349	5,700	7,182	8,492	7,272	8,180	7,468	7,469	7,663	6,480	4,722	4,104

[1] Cucumbers for pickling are not included.
[2] Preliminary.
[3] Principally hothouse stock.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.

Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 208.—*Dates: Production and average price per ton received by producers, California, 1925–33*

Item	1925	1926	1927	1928	1929	1930	1931	1932	1933 [1]
Production......short tons	340	522	710	817	865	1,560	1,200	2,150	2,450
Price......dollars	282	342	302	262	222	140	60	40	90
Farm value, basis average price......1,000 dollars	96	179	214	214	192	218	72	86	220

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 209.—*Figs: Production, average price per ton received by producers, and value, California and Texas, 1924–33*

Year	Dried, California			Marketed fresh and canned, California			Preserving, Texas		
	Production	Price	Farm value, basis average price	Production	Price	Farm value, basis average price	Production	Price	Farm value, basis average price
	Short tons	*Dollars*	*1,000 dollars*	*Short tons*	*Dollars*	*1,000 dollars*	*Short tons*	*Dollars*	*1,000 dollars*
1924	8,500	100.00	850	2,135	104.00	222	1,180	102.00	120
1925	9,600	110.00	1,056	3,075	100.00	308	2,240	85.00	190
1926	11,350	95.00	1,078	5,100	112.00	571	4,978	68.00	338
1927	12,000	45.00	540	5,400	100.00	540	4,879	68.00	332
1928	11,500	45.00	518	6,130	87.00	533	6,513	65.50	427
1929	17,000	90.00	1,530	7,300	100.00	730	2,778	70.00	194
1930	21,000	48.00	1,008	7,700	90.00	693	2,961	70.00	207
1931	17,000	37.00	629	6,300	74.00	466	1,851	65.00	120
1932	17,000	25.47	433	6,500	36.50	237	504	50.00	25
1933 [1]	19,000	43.80	832	5,900	50.50	298	485	65.00	32

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 210.—*Grapes: Production and average price per ton received by producers, by States, average 1926–30, and annual 1932 and 1933*

State and division	Production			Price for crop of [1]—	
	Average, 1926–30	1932	1933 [2]	1932	1933 [2]
	Short tons	*Short tons*	*Short tons*	*Dollars*	*Dollars*
Maine	48	24	24	80.00	80.00
New Hampshire	76	43	43	80.00	80.00
Vermont	38	42	31	80.00	80.00
Massachusetts	489	334	353	65.00	60.00
Rhode Island	210	237	207	65.00	70.00
Connecticut	1,267	1,226	1,240	50.00	55.00
New York	79,296	67,971	64,800	19.00	24.00
New Jersey	2,794	3,230	2,535	35.00	38.00
Pennsylvania	21,344	22,977	17,808	16.00	25.00
North Atlantic	105,563	96,084	87,041	19.55	25.34
Ohio	23,784	30,705	27,412	18.00	29.00
Indiana	3,431	3,108	2,590	19.00	26.00
Illinois	5,418	6,000	5,986	22.00	26.00
Michigan	61,888	71,220	58,565	16.00	20.00
Wisconsin	358	396	357	65.00	70.00
Minnesota	186	327	307	65.00	70.00
Iowa	6,271	7,650	6,624	30.00	35.00
Missouri	9,996	9,717	9,880	30.00	35.00
Nebraska	2,201	2,960	1,824	40.00	60.00
Kansas	3,758	4,810	4,158	40.00	45.00
North Central	117,291	136,893	117,703	20.18	26.41
Delaware	1,780	2,352	2,448	35.00	45.00
Maryland	1,011	625	596	50.00	55.00
Virginia	2,155	1,488	1,666	60.00	75.00
West Virginia	1,099	1,008	990	60.00	80.00
North Carolina	5,199	3,431	4,661	45.00	45.00
South Carolina	1,371	750	958	60.00	65.00
Georgia	1,313	630	759	90.00	90.00
Florida	804	454	767	70.00	80.00
South Atlantic	14,732	10,738	12,845	51.22	58.23
Kentucky	927	1,035	1,174	40.00	45.00
Tennessee	1,186	1,005	1,155	55.00	55.00
Alabama	711	509	625	65.00	65.00
Mississippi	248	178	231	75.00	75.00
Arkansas	9,443	12,936	12,120	26.00	26.00
Louisiana	40	42	41	75.00	75.00
Oklahoma	2,130	3,440	2,610	37.00	40.00
Texas	1,511	1,809	1,820	55.00	55.00
South Central	16,197	20,954	19,776	33.74	35.24
Idaho	399	561	488	45.00	55.00
Colorado	353	462	400	45.00	55.00
New Mexico	674	1,050	768	50.00	60.00
Arizona	1,648	1,912	2,016	30.00	35.00
Utah	1,276	1,274	930	40.00	50.00
Nevada	180	90	92	85.00	85.00
Washington	4,207	5,100	5,320	13.00	17.00
Oregon	2,134	2,640	2,205	15.00	20.00
California	[3] 2,182,000	[3] 1,926,000	[3] 1,559,000	11.72	16.10
Wine varieties	[3] 454,400	[3] 388,000	[3] 373,000	12.00	19.75
Raisin varieties	[3] 1,314,400	[3] 1,221,000	916,000	10.89	15.00
Dry [4]	245,000	262,000	179,000	39.00	57.41
Not dried	[3] 334,400	[3] 173,000	200,000	18.73	17.32
Table varieties	[3] 413,200	[3] 317,000	[3] 270,000	16.00	14.80
Western	[3] 2,192,871	[3] 1,939,089	[3] 1,571,219	11.81	16.20
United States	[3] 2,446,654	[3] 2,203,758	[3] 1,808,584	13.16	17.82

[1] Prices and value are computed on the harvested crop plus a quantity of fruit that was sold but left on the vines in 1930.

[2] Preliminary.

[3] Includes some quantities not harvested on account of market conditions as follows: Wine varieties, 1928, 18,000 tons; 1930, 40,000 tons; 1932, 25,000 tons; 1933, 3,000 tons; raisin varieties (not dried), 1928, 60,000 tons; 1930, 319,000 tons including 316,000 tons sold but left on the vines; 1932, 21,000 tons; table varieties, 1926, 15,000 tons; 1927, 142,000 tons; 1928, 75,000 tons; 1930, 74,000 tons; 1932, 108,000 tons; 1933, 3,000 tons.

[4] Dried basis: 1 ton of dried raisins equivalent to 4 tons of fresh grapes.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.
Estimates of production for 1929–32 revised on basis of 1930 census. Earlier years not so revised.

TABLE 211.—*Grapes: Production, average price per ton received by producers, foreign trade, United States, 1922–33*

Year	Production			United States price [1]	United States farm value, basis average price [1]	Foreign trade, year beginning July [2]			
	Total, United States	California	Other States			Domestic exports	Imports	Net exports [3]	
								Total	Percentage of production
	Short tons	*Short tons*	*Short tons*	*Dollars*	*1,000 dollars*	*Short tons*	*Short tons*	*Short tons*	*Percent*
1922	1,981,171	1,706,000	275,171	48.09	95,272	7,011	16,326	[4] 9,315	----------
1923	2,227,395	2,030,000	197,395	31.88	71,009	10,128	10,015	198	(5)
1924	1,777,722	1,535,000	242,722	41.79	74,297	10,151	1,608	8,566	0.5
1925	[6] 2,202,085	[6] 2,050,000	152,085	32.03	66,115	12,134	1,415	10,735	.5
1926	[6] 2,438,413	[6] 2,129,000	309,413	26.66	64,604	15,396	1,011	14,414	.6
1927	[6] 2,605,238	[6] 2,406,000	199,238	26.52	65,332	19,410	1,735	17,747	.7
1928	[6] 2,671,076	[6] 2,366,000	305,076	19.75	49,740	27,819	1,703	26,155	1.0
1929	2,077,587	1,827,000	250,587	27.23	56,574	23,079	2,687	20,448	1.0
1930	[6] 2,440,956	[6] 2,182,000	258,956	19.28	44,817	24,900	2,856	22,107	.9
1931	[6] 1,621,837	[6] 1,320,000	301,837	22.40	36,100	13,806	3,013	10,902	.7
1932	[6] 2,203,758	[6] 1,926,000	277,758	13.16	26,983	14,676	3,157	11,616	.5
1933 [7]	[6] 1,808,584	[6] 1,559,000	249,584	17.82	32,114	----------	----------	----------	----------

[1] For years 1925–28, the average price for the States reporting price, except California, is used for computing the value of the grape crop in the less important States for which no price is determined. Price and value are based on quantities actually harvested plus a quantity of fruit that was sold but left on the vines in 1930.
[2] Compiled from Monthly Summary of Foreign Commerce of the United States, June issues, 1923–26; January and June issues, 1927–33.
[3] Total exports (domestic plus foreign) minus total imports.
[4] Net import equals total imports minus total exports (domestic plus foreign).
[5] Less than 0.05 percent.
[6] Includes fruit in California not harvested as follows: 138,000 tons in 1925, 15,000 tons in 1926, 142,000 tons in 1927, 153,000 tons in 1928, 433,000 tons in 1930 including 316,000 tons sold but left on the vines, 10,000 tons in 1931, 154,000 tons in 1932, and 6,000 tons in 1933. (See also last sentence of note 1.)
[7] Preliminary.

Bureau of Agricultural Economics; production figures are estimates of the Crop Reporting Board. Prices are based upon returns from crop reporters. Estimates of production for 1929–32 revised on basis of 1930 census. Earlier years not so revised.

TABLE 212.—*Grapes: Car-lot shipments, by State of origin, 1922–33*

State	Crop-movement season [1]											
	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
New York	7,720	4,312	5,641	3,763	7,242	3,050	3,750	2,541	2,049	4,240	1,670	1,128
Pennsylvania	1,558	847	1,166	589	1,350	689	1,076	879	809	1,290	613	421
Michigan	6,020	4,202	4,680	398	3,081	2,023	1,571	1,746	1,620	528	892	579
Iowa	237	217	79	50	176	196	234	369	226	185	203	118
Missouri	128	58	101	166	686	108	415	225	316	329	170	111
Arkansas	38	33	243	394	1,170	108	998	510	322	313	233	190
Washington	47	62	83	191	125	167	235	232	117	94	73	38
California	43,952	55,348	57,695	76,066	64,327	75,925	73,157	59,205	65,185	39,777	42,239	29,038
Other States	219	257	245	261	433	411	332	395	271	190	178	144
Total	59,919	65,336	69,933	81,878	78,590	82,677	81,768	66,102	70,915	46,946	46,271	31,767

[1] Crop-movement season extends from June 1 through December of a given year. Figures for California include shipments in January, February, and March following the regular crop-movement season.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 213.—*Grapes: Number of packages of California varieties sold, and weighted season average price,*[1] *auction sales in 11 markets,*[2] *1928–33*

Variety or type	Number of packages (crates or lugs) [3]						Average price per package					
	1928	1929	1930	1931	1932	1933	1928	1929	1930	1931	1932	1933
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Flame Tokay	2,762	1,867	2,485	1,591	1,480	1,469	1.34	1.42	1.15	1.59	1.10	1.18
Emperor	103	56	41	991	703	649	1.15	1.62	1.06	1.61	1.11	1.34
Red Malaga	------	113	119	157	274	195	------	2.20	1.79	1.93	1.17	1.65
Ribier	------	89	152	184	251	224	------	1.86	1.67	1.71	1.43	1.51
Sultanina (Thompson Seedless)	2,484	2,737	2,377	1,555	2,237	1,779	1.05	1.48	1.28	1.53	1.27	1.43
Malaga	3,129	2,045	2,096	2,976	1,351	1,162	1.17	1.37	1.08	1.22	.90	1.11
Muscat	4,888	2,754	2,455	931	2,770	1,467	0.81	1.06	1.08	1.18	.76	.99
Alicante	4,966	4,759	5,123	3,480	3,845	1,957	1.22	1.29	1.11	1.16	.91	1.07
Carignane	1,711	1,541	1,973	1,654	1,476	737	1.06	1.14	.97	1.11	.73	.98
Cornichon	558	314	268	264	132	147	1.05	1.26	.98	1.26	.94	1.10
Mataro	320	199	176	172	204	40	.96	1.14	1.13	.99	.85	1.01
Mission	585	297	283	308	179	127	.88	1.23	.91	1.15	.68	.92
Petite Sirah	365	276	235	113	152	16	.96	1.15	1.11	.92	.88	1.22
Zinfandel	1,680	1,425	1,112	624	1,309	627	1.00	1.14	1.06	1.05	.95	1.13
Total or average	23,551	18,472	18,895	15,000	16,363	10,596	1.08	1.29	1.11	1.29	.96	1.17

[1] Season begins about Aug. 1 and ends in November.
[2] Baltimore, Boston, Chicago, Cincinnati, Cleveland, Detroit, Minneapolis, New York, Philadelphia, Pittsburgh, and St. Louis.
[3] Packages containing about 26–28 pounds.

Bureau of Agricultural Economics; compiled from daily reports of the fruit and vegetable market news service.
Only principal varieties shown.

TABLE 214.—*Grapes, Concord: Average l. c. l. price per 12-quart basket to jobbers, specified markets, by State of origin, October, 1924–33*

Season	Price of New York Concords at—				Price of Michigan Concords at—		
	Boston	New York	Philadelphia	Pittsburgh	Chicago	Minneapolis	St. Louis
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924	91	84	90	85	68	----------	72
1925	102	114	104	109	109	118	----------
1926	61	62	56	60	43	67	56
1927	56	61	64	64	55	76	65
1928	60	54	49	51	44	59	53
1929	50	54	51	48	41	56	49
1930	57	51	54	48	41	53	56
1931	----------	36	34	29	32	44	42
1932	32	31	31	24	18	26	23
1933	38	35	36	29	26	----------	31

Bureau of Agricultural Economics; compiled from daily market reports from bureau representatives in the various markets.

TABLE 215.—*Lettuce: Car-lot shipments, by State of origin, 1922–33*

State	Crop-movement season [1]											
	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
New York	3,167	3,817	3,698	3,821	3,019	3,496	3,140	3,704	3,219	3,291	2,500	1,266
New Jersey	572	456	416	463	303	308	144	169	27	18	10	1
North Carolina	622	718	714	537	540	447	477	363	364	498	110	195
South Carolina	987	576	424	736	372	369	241	310	169	278	46	115
Florida	2,899	2,926	2,490	2,190	707	950	880	1,117	560	940	440	465
Idaho	889	1,241	533	500	398	196	72	76	154	180	237	389
Colorado	812	1,436	1,036	3,096	2,795	2,848	2,368	2,109	1,610	1,004	598	664
Arizona	577	834	1,776	2,689	4,572	7,679	9,325	9,285	8,431	7,850	7,021	7,216
Washington	812	1,082	673	820	904	1,151	1,240	1,747	2,230	1,778	1,595	1,477
California	10,321	13,916	17,040	20,999	25,126	28,502	32,122	33,854	38,736	35,211	34,869	30,978
Other States	654	791	661	658	541	400	319	286	218	151	161	185
Total	22,312	27,793	29,461	36,509	39,277	46,346	50,328	53,020	55,718	51,199	47,587	42,951

[1] Crop-movement season covers 15 months, from October of the previous year through December of the given year, i. e., 1922 season begins in October 1921, and extends through December 1922.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 216.—*Lettuce, commercial crop: Acreage, production, and season average price per crate received by producers, by States; average 1927–31, annual 1932 and 1933*

Group and State	Acreage			Production			Price for crop of—		
	Average 1927–31	1932	1933	Average 1927–31	1932	1933	Average 1927–31	1932	1933
	Acres	*Acres*	*Acres*	*1,000 crates* [1]	*1,000 crates* [1]	*1,000 crates* [1]	*Dollars*	*Dollars*	*Dollars*
Early: [2]									
Arizona	13,520	13,000	12,400	1,422	910	1,178	1.41	1.65	1.10
California, Imperial	32,550	33,500	30,000	[3] 4,178	3,685	3,090	1.69	1.54	1.35
Florida	1,940	1,700	1,650	516	370	574	1.42	1.24	.84
Lettuce	[4] 1,420	1,000	950	[4] 342	200	280	[4] 1.50	1.28	.96
Escarole	[4] 540	700	700	[4] 229	170	294	[4] 1.20	1.20	.72
Texas	760	160	100	66	6	6	1.00	1.00	.50
Total	48,770	48,360	44,150	[3] 6,182	4,971	4,848	1.56	1.54	1.23
Second early:									
Arizona	14,260	14,400	13,000	1,557	1,584	1,339	1.77	1.30	1.60
California, other	26,070	32,120	27,250	3,056	2,634	3,134	1.53	1.51	1.15
North Carolina	1,410	1,200	1,350	169	43	101	1.34	1.78	1.00
South Carolina	620	200	400	105	16	46	1.79	.76	1.00
Total	42,360	47,920	42,000	4,887	4,277	4,620	1.63	1.43	1.28
Intermediate:									
Idaho	70	80	80	11	12	12	1.56	1.10	.75
New Jersey	1,120	800	1,000	247	160	250	1.80	1.00	1.10
Oregon	100	160	180	7	14	15	1.13	.75	.60
Virginia	250	200	200	46	34	35	1.54	1.70	1.50
Washington	2,530	3,300	3,600	514	[3] 676	684	1.06	.65	.60
Total	4,070	4,540	5,060	825	[3] 896	996	1.31	.77	.76
Late (section 1):									
California	9,640	14,050	9,250	1,226	1,644	1,304	1.91	1.25	1.88
Colorado	8,840	8,310	5,630	925	[3] 831	563	1.22	.50	1.00
New Mexico	300	20	200	29	2	19	1.05	1.25	1.20
New York	5,460	5,650	5,400	1,422	1,186	837	1.56	.26	.75
Pennsylvania	220	250	250	31	50	45	1.59	.75	.90
Total	24,460	28,280	20,730	3,633	[3] 3,713	2,768	1.62	.79	1.34
Late (section 2):									
California, other	25,390	32,500	25,100	3,565	3,542	3,514	1.66	1.26	1.50
Idaho	460	450	700	79	79	126	1.07	.70	.90
New Jersey	1,010	900	750	193	212	169	1.84	.60	.88
Oregon	100	200	120	11	[3] 30	18	1.11	.48	.85
Washington	340	500	500	67	[3] 100	90	1.25	.75	.95
Total	27,300	34,550	27,170	3,915	[3] 3,963	3,917	1.66	1.20	1.44
Grand total	146,960	163,650	139,110	[3] 19,442	[3] 17,820	17,149	1.59	1.26	1.28

[1] Western crates containing approximately 4 dozen heads.
[2] Season begins in fall of the previous year.
[3] Includes some quantities not harvested on account of market conditions: California, Imperial, 1,650,000 crates in 1927; Colorado, 389,000 crates in 1932; Oregon, late crop, 10,000 crates in 1932; Washington, intermediate crop, 96,000 crates, and late crop, 15,000 crates in 1932. Price refers to harvested portion of crop.
[4] Short-time average.

Bureau of Agricultural Economics; estimates based upon returns from crop reporters.

TABLE 217.—*Olives: Production and average price per ton received by producers, California, 1924–33*

Item	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933 [1]
Production ......short tons	6,500	14,000	12,000	21,500	23,900	21,000	20,000	16,000	22,000	12,000
Price ......dollars	92.00	60.00	80.00	80.00	80.00	75.00	70.00	46.00	29.00	58.00
Farm value, basis average price ......1,000 dollars	598	840	960	1,720	1,912	1,575	1,400	736	638	696

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 218.—*Olive oil (including inedible): International trade, average 1925–29 annual 1929–32*

Country	Calendar year									
	Average, 1925–29		1929		1930		1931		1932[1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Spain	164,975	2	113,251	0	235,678	0	206,921	0	138,805	0
Italy	66,494	1,769	79,269	313	159,698	132,561	129,738	180,581	99,761	83,518
Tunis	53,947	1,458	95,803	11	109,301	151	28,910	713	52,792	814
Greece	28,599	[2] 123	31,766	4	18,514	[3] 7	21,604	[3] 5	68,113	0
Algeria	28,466	115	28,505	162	54,152	78	18,309	50	40,502	87
Turkey	18,185	[4] 198	33,872	[3] 521	10,452	[3] 4	40,254	[3] 35	--------	--------
Syria and Lebanon [3]	4,283	339	5,618	180	6,397	413	7,199	351	--------	--------
Morocco	4,206	282	6,802	417	3	1,361	0	2,762	--------	--------
Yugoslavia	1,077	861	2,238	400	322	542	182	402	136	184
Total	370,232	5,147	397,124	2,008	594,517	135,117	453,117	184,899	400,109	84,603
PRINCIPAL IMPORTING COUNTRIES										
United States	0	135,847	0	153,005	0	162,860	0	119,363	0	131,942
Argentina [3]	0	95,334	0	112,309	0	130,715	0	91,782	0	--------
France	13,958	40,146	13,199	45,251	25,446	72,390	22,389	46,792	21,997	60,374
United Kingdom	324	19,100	338	20,541	269	21,179	208	19,604	394	24,494
Cuba	0	16,654	0	16,765	0	20,983	0	14,490	0	--------
Chile	0	14,103	0	7,796	0	6,741	21	5,288	--------	1,758
Uruguay	0	13,410	0	13,790	0	18,753	0	[3] 15,115	0	--------
Brazil	0	12,808	0	9,814	0	18,399	0	5,848	0	11,595
Norway	0	7,098	0	10,453	0	5,882	0	2,960	0	8,500
Macao (Portuguese China) [3]	[4] 2,331	[4] 6,813	382	5,397	998	5,151	796	4,642	--------	--------
Portugal	5,722	6,659	3,331	2,246	8,020	26,510	3,979	7,004	8,671	3,271
Palestine	710	5,726	361	7,666	1,147	2,148	1,762	94	1,576	1,062
Canada	0	4,044	0	4,732	0	6,487	0	5,590	0	5,153
Switzerland	2	3,443	0	3,701	0	4,847	9	4,096	9	4,651
Egypt	32	2,666	26	2,946	24	3,907	9	2,394	--------	2,893
Germany	53	2,631	87	2,600	50	3,393	145	2,955	41	3,023
Mexico	0	2,230	0	[3] 2,304	0	3,827	0	2,136	0	--------
Rumania	1	1,871	2	1,480	0	1,549	--------	1,171	--------	1,264
Australia [3]	1	1,545	0	1,996	2	2,530	1	1,484	--------	--------
Belgium	33	1,319	11	1,143	22	1,671	13	1,209	10	1,344
Peru	0	1,272	0	1,528	0	1,188	15	836	3	--------
Bulgaria	0	1,227	0	483	0	507	0	496	0	434
Czechoslovakia	24	958	1	1,071	2	1,208	0	1,187	0	1,286
Sweden	4	454	2	601	3	840	29	656	3	748
Japan	0	330	0	[3] 349	0	--------	--------	--------	--------	--------
Philippine Islands	0	312	0	346	0	292	0	346	0	339
Netherlands	7	181	3	185	16	280	18	278	29	424
New Zealand	0	173	0	166	0	312	0	189	0	291
Denmark	6	154	6	194	5	341	3	264	2	198
Total	23,208	398,508	17,749	430,858	36,004	524,890	29,397	358,269	32,735	265,044

[1] Preliminary.
[2] 2-year average.
[3] International Yearbook of Agricultural Statistics.
[4] 4-year average.

Bureau of Agricultural Economics; official sources except where otherwise noted.
Conversions made on the basis of 7.5 pounds to the gallon.

TABLE 219.—*Onions, commercial crop: Acreage, production, and season average price (to Dec. 1) per bushel received by producers, by States; average 1927–31, annual 1932 and 1933*

Group and State	Acreage			Production			Price for crop of—		
	Average 1927–31	1932	1933	Average 1927–31	1932	1933	Average 1927–31	1932	1933
Early (Bermuda and Creole):	*Acres*	*Acres*	*Acres*	*1,000 bushels* [1]	*1,000 bushels* [1]	*1,000 bushels* [1]	*Dollars*	*Dollars*	*Dollars*
California	2,930	2,450	1,150	775	[2] 620	334	1.15	0.65	0.92
Louisiana	1,950	1,200	500	211	90	34	1.11	.80	.88
Texas	16,540	21,200	18,000	[2] 3,300	4,176	2,340	1.05	1.02	.53
Total	21,420	24,850	19,650	[2] 4,286	[2] 4,886	2,708	1.06	.97	.58
Intermediate (domestic):									
California	840	2,000	1,150	370	[2] 908	606	.60	.26	.77
Iowa, Scott County district	980	1,050	1,000	257	315	230	.97	.55	.75
Kentucky	620	400	340	129	88	65	.67	.40	.85
New Jersey	2,440	3,000	3,600	589	675	954	1.06	.70	.75
Texas, north	1,520	2,600	1,800	397	650	450	1.09	.71	.90
Virginia, Eastern Shore	590	520	550	88	52	69	.82	.50	1.25
Washington, Walla Walla district	830	760	660	366	304	264	.54	.25	.40
Total	7,820	10,330	9,100	2,196	[2] 2,992	2,638	.83	.51	.76
Late (domestic):									
California	5,700	5,640	4,530	[2] 1,730	[2] 1,985	1,450	.86	.26	.52
Colorado	4,940	5,670	4,150	[2] 1,570	[2] 1,644	1,141	.68	.23	.45
Idaho	1,420	1,600	1,400	706	[2] 720	602	.66	.24	.43
Illinois	720	800	750	176	220	112	.88	.40	.84
Indiana	8,380	8,580	6,700	2,405	3,089	1,206	.76	.17	.53
Iowa, other	1,730	1,400	1,120	510	[2] 406	235	.76	.20	.53
Massachusetts	3,250	2,720	3,100	1,087	1,197	1,147	.83	.34	.70
Michigan	5,500	8,670	7,580	1,688	2,783	2,501	.75	.18	.60
Minnesota	2,130	2,400	2,200	632	936	825	.71	.23	.50
Nevada	[3] 150	200	170	[3] 37	80	27	[3] .63	.20	.57
New York	7,690	8,770	8,600	2,847	3,683	3,526	.80	.23	.70
Ohio	6,170	5,140	4,610	1,434	1,388	991	.77	.21	.60
Oregon	1,100	1,300	1,400	455	572	644	.76	.30	.48
Pennsylvania	310	360	290	82	90	67	.87	.45	.70
Utah	1,000	1,000	900	416	500	315	.64	.20	.65
Washington, other	850	1,000	850	395	400	374	.66	.20	.30
Wisconsin	1,100	1,240	1,150	337	335	293	.76	.23	.60
Total	52,090	56,490	49,500	[2] 16,491	[2] 20,028	15,456	.76	.22	.58
Total, domestic	59,890	66,820	58,600	[2] 18,687	[2] 23,020	18,094	.76	.26	.61
Grand total	81,330	91,670	78,250	[2] 22,973	[2] 27,906	20,802	.80	.39	.61

[1] Bushels containing approximately 57 pounds.
[2] Includes some quantities not harvested on account of market conditions: early—California, 50,000 bushels in 1932; Texas, 726,000 bushels in 1931, intermediate—California, 204,000 bushels in 1932, late—California, 75,000 bushels in 1930 and 454,000 bushels in 1932; Colorado, 145,000 bushels in 1929 and 174,000 bushels in 1932; Idaho, 170,000 in 1932; Iowa, 10,000 bushels in 1932. Price refers to harvested portion of crop.
[3] Short-time average.

Bureau of Agricultural Economics; estimates based upon returns from crop reporters.

TABLE 220.—*Onions: Car-lot shipments, by State of origin, 1922–23 to 1932–33*

State	Crop-movement season [1]										
	1922–23	1923–24	1924–25	1925–26	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Massachusetts	1,912	2,454	2,481	2,856	3,586	2,495	1,416	1,854	1,474	1,360	597
New York	2,812	5,505	5,335	5,109	3,720	4,102	1,807	3,985	4,226	3,272	2,570
New Jersey	479	335	403	235	253	295	333	239	193	219	105
Ohio	4,493	2,714	4,492	1,856	2,287	4,070	1,774	2,988	2,293	1,341	1,397
Indiana	4,684	4,610	3,735	4,158	4,493	5,000	3,939	5,195	6,879	2,750	4,878
Illinois	487	378	241	291	158	142	130	142	193	69	155
Michigan	1,867	1,222	1,623	1,402	2,171	2,653	2,664	2,964	5,499	2,800	4,776
Wisconsin	330	273	212	361	270	279	294	241	219	199	236
Minnesota	500	189	487	674	684	1,289	1,077	1,448	1,141	740	1,527
Iowa	927	882	1,176	1,365	1,434	1,333	1,430	1,492	1,762	789	1,031
Virginia	371	274	345	138	178	131	178	234	109	147	61
Kentucky	258	263	266	152	134	145	69	59	12	38	13
Texas	4,630	3,027	3,918	3,941	5,316	4,028	7,081	7,232	6,312	5,718	8,341
Idaho	161	256	322	876	531	891	1,152	731	677	1,315	299
Colorado	651	928	1,064	1,809	1,758	1,460	2,244	4,042	2,124	1,482	1,593
Utah	170	177	216	599	662	654	1,029	950	551	495	472
Washington	765	1,126	1,016	1,000	1,200	1,302	1,153	1,417	1,464	1,299	645
Oregon	263	392	558	681	678	671	663	660	730	1,062	[3] 519
California	3,631	4,145	2,671	3,603	3,013	3,753	4,492	4,144	4,062	3,384	1,964
Other States	369	330	235	540	536	499	351	264	147	328	182
Total	29,760	29,480	30,796	31,646	33,062	35,192	33,326	40,281	40,067	28,807	31,361

[1] Crop-movement season covers 16 months, from March of one year through June of the following year.
[2] Preliminary. [3] Includes 1 car in July 1933.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.

Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 221.—*Onions: Average l.c.l. price per 100 pounds to jobbers, New York and Chicago, 1924–25 to 1933–34*

Market and season	Bermuda varieties						Various common varieties								
	April		May		June										
	Yellow	Crystal White Wax	Yellow	Crystal White Wax	Yellow	Crystal White Wax	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
New York:	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924–25	-----	-----	3.27	-----	-----	-----	-----	2.17	1.89	1.84	2.08	2.84	3.05	3.05	2.86
1925–26	4.19	5.04	6.16	5.01	7.18	-----	5.27	2.94	2.36	2.86	2.80	3.26	2.95	2.69	2.81
1926–27	-----	-----	4.37	-----	3.27	-----	2.58	2.26	1.59	1.82	1.92	2.74	3.08	2.76	3.46
1927–28	5.36	-----	5.64	-----	6.64	-----	2.90	2.17	1.72	1.60	1.72	2.18	2.60	2.89	4.25
1928–29	5.38	6.17	3.14	3.33	2.37	2.00	2.15	2.62	3.53	3.62	4.14	4.42	4.88	5.42	4.67
1929–30	4.47	-----	3.10	-----	3.50	-----	3.03	2.31	2.02	1.91	1.86	2.28	2.23	2.37	2.11
1930–31	3.40	4.05	2.60	-----	2.96	-----	2.25	1.88	1.70	1.53	1.63	1.55	1.28	1.32	1.47
1931–32	-----	-----	-----	-----	3.20	-----	1.73	2.14	2.55	2.73	2.97	3.85	4.58	4.58	6.38
1932–33	[1] 6.52	-----	[1] 2.78	[1] 2.71	[1] 1.69	-----	1.49	1.17	1.27	1.41	1.29	1.26	1.37	1.41	1.45
1933–34	[1] 2.27	-----	2.42	-----	3.38	-----	2.22	2.30	2.08	2.16	2.20	2.77	-----	-----	-----
Chicago:															
1924–25	5.17	-----	3.37	4.10	-----	-----	-----	3.11	2.73	2.43	2.52	2.88	3.96	3.38	4.32
1925–26	4.15	5.46	6.33	6.75	7.94	8.39	4.94	3.41	2.90	3.11	3.35	3.46	3.20	2.81	3.18
1926–27	5.60	5.92	3.97	4.71	3.21	3.61	2.34	2.25	2.07	1.92	1.69	2.46	3.31	3.42	3.92
1927–28	5.27	5.96	5.66	6.15	5.57	6.07	3.31	2.57	1.74	1.68	1.65	2.02	2.77	2.78	4.04
1928–29	4.57	5.23	3.04	3.17	2.31	2.64	2.25	2.72	3.35	3.66	4.22	4.59	5.27	5.39	5.26
1929–30	4.07	5.22	3.06	3.33	3.45	4.42	3.60	3.08	2.44	2.12	2.20	2.29	2.39	2.18	1.73
1930–31	3.87	4.55	2.78	3.15	3.02	3.48	2.98	[2] 2.12	[2] 1.80	[2] 1.14	[2] .89	1.47	1.51	1.27	1.60
1931–32	-----	-----	3.26	3.71	2.93	3.14	2.24	2.43	2.74	2.94	2.76	3.57	4.65	5.14	6.86
1932–33	[1] 6.66	[1] 7.16	2.42	2.60	1.68	1.84	-----	1.23	1.29	1.09	1.00	1.06	1.06	1.04	1.16
1933–34	[1] 2.49	[1] 2.51	2.38	2.57	2.88	2.92	2.72	2.50	2.14	1.72	1.80	2.08	-----	-----	-----

[1] No quotations for U.S. No. 1 grade; prices shown are for U.S. Commercial grade which is not comparable with U.S. No. 1. [2] Car-lot sales.

Bureau of Agricultural Economics; compiled from daily market reports from Bureau representatives in the markets.

Average prices as shown are based on stock of U.S. No. 1 grade, except as otherwise stated; they are simple averages of daily range of selling prices. In some cases conversions have been made from larger to smaller units or vice versa in order to obtain comparability.

TABLE 222.—*Peaches: Total production, average price per bushel received by producers, and exports of the United States, 1919–33* [1]

Year	Production	Price [2]	Farm value, basis average price	Domestic exports, year beginning July [3]				
				Fresh	Dried	Canned [4]	Total in terms of fresh	Percentage of production
	1,000 bushels	*Dollars*	*1,000 dollars*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 bushels*	*Percent*
1919	*50,686*							
1919	53,178	1.89	100,485		12,756		1,399	2.6
1920	45,620	2.10	95,970		3,573		392	0.9
1921	32,602	1.59	51,739	[5] 611	6,260		699	2.1
1922	55,852	1.34	74,717	13,170	5,586	54,624	3,163	5.7
1923	45,382	1.37	62,025	15,065	12,975	50,374	3,835	8.5
1924	*47,755*							
1924	53,848	1.26	68,084	16,172	4,668	57,390	3,240	6.0
1925	46,562	1.38	64,171	15,749	3,351	83,160	4,161	8.9
1926	[6] 69,865	1.00	68,426	14,453	6,968	81,896	4,477	6.4
1927	[6] 45,463	1.18	50,494	17,969	6,542	86,634	4,701	10.3
1928	[6] 68,369	.99	63,643	22,067	12,436	101,438	6,050	8.8
1929	*42,827*							
1929	44,977	1.33	59,682	19,973	3,847	74,470	3,941	8.8
1930	[6] 54,199	.89	44,142	12,859	8,482	75,763	4,355	8.0
1931	[6] 76,586	.56	40,726	10,731	8,490	66,300	3,917	5.1
1932	[6] 42,443	.53	18,897	3,298	7,649	74,999	4,032	9.5
1933 [7]	[6] 45,326	.76	32,618					

[1] Dried peaches converted to terms of fresh on the basis that dried peaches equal 19 percent of fresh. Canned peaches converted to terms of fresh on the basis that 24 pounds of fresh equal 1 dozen cans of 1 pound each; 48 pounds fresh equals 1 bushel. In practice, 1 bushel of fresh fruit is figured as the equivalent of 2 dozen cans of 1 pound each. No reexports reported.

[2] From 1919 to 1922, Sept. 15 price; 1923–25, Sept. 15 price in North, Aug. 15 price in South; 1926–33, average price for the crop marketing season.

[3] Compiled from Monthly Summary of Foreign Commerce of the United States, June issues, 1919–26, January and June issues, 1927–33.

[4] Canned peaches were reported in value only, prior to July 1, 1922.

[5] No exports reported prior to Jan. 1, 1922; figures for 1921 represent exports Jan. 1, 1922, to June 30, 1922.

[6] Includes fruit not harvested as follows: 1926, 1,462,000 bushels in Georgia and Northern States; 1927, 2,708,000 bushels in California; 1928, 2,917,000 bushels in California and 1,000,000 bushels in Georgia; 1930, 10,638,000 bushels in California including 6,180,000 sold but left on the trees; 1931, 8,063,000 bushels in California including 3,938,000 sold but left on the trees; 1932, 6,710,000 bushels in California; 1933, 3,647,000 bushels in California including 1,480,000 bushels sold but left on the trees. Values are based on the quantity actually harvested plus a quantity of fruit that was sold but left on trees in 1930, 1931, and 1933.

[7] Preliminary.

Bureau of Agricultural Economics; production figures are estimates of the Crop Reporting Board. Italic figures are census returns. Prices based upon returns from crop reporters. Estimates of production for 1929–32 revised on basis of 1930 census. Earlier years not so revised.

TABLE 223.—*Peaches: Car-lot shipments, United States, by months, 1924–33*

Season	May	June	July	August	September	October [1]	Total
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
1924	28	1,873	14,603	13,781	7,889	1,323	39,497
1925	328	4,951	17,932	9,921	7,420	306	40,858
1926	52	2,209	21,793	24,538	8,847	1,026	58,465
1927	267	5,638	12,464	13,217	9,739	178	41,503
1928	12	1,755	23,122	22,822	8,802	462	56,975
1929	106	2,374	10,429	14,012	8,308	222	35,451
1930	18	2,515	12,956	15,526	7,333	142	38,490
1931	47	2,045	15,765	23,782	4,283	148	46,070
1932		357	3,796	10,690	5,383	525	20,751
1933 [2]	7	1,476	9,161	10,391	7,163	50	28,248

[1] Figures include shipments in November as follows: 1924, 1 car; 1926, 5 cars; 1932, 3 cars.

[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.

Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included. See 1927 Yearbook, p. 855 for data for earlier years.

TABLE 224.—*Peaches: Production and average price per bushel received by producers, by States, average 1926–30, annual 1932 and 1933*

State and division	Production: Average, 1926–30	Production: 1932	Production: 1933 [1]	Price for crop of— 1932	Price for crop of— 1933
	1,000 bu.	*1,000 bu.*	*1,000 bu.*	*Dol.*	*Dol.*
N.H.	24	20	18	1.50	1.50
Mass.	169	166	134	1.15	1.40
R.I.	29	44	26	1.15	1.45
Conn.	215	215	172	.80	1.30
N.Y.	1,720	1,663	1,092	.60	1.10
N.J.	2,056	1,776	987	.70	1.10
Pa.	1,513	1,676	1,144	.80	1.20
N. Atlantic	5,726	5,560	3,573	.72	1.16
Ohio	1,203	814	456	.90	1.45
Ind.	548	106	221	1.00	1.35
Ill.	1,748	188	1,522	1.20	1.20
Mich.	1,041	1,845	215	.70	1.75
Iowa	60	76	7	.90	1.55
Mo.	721	102	204	1.20	1.15
Nebr.	43	58	4	.95	1.70
Kans.	180	50	14	1.20	1.65
N. Central	5,543	3,239	2,643	.82	1.30
Del.	286	227	205	.60	1.25
Md.	486	348	400	.85	1.00
Va.	755	324	990	1.00	1.10
W.Va.	522	143	396	1.15	1.15
N.C.	1,848	1,645	2,080	.95	.85
S.C.	984	792	1,633	.95	.85
Ga.	[2] 6,909	1,170	5,440	.95	.75
Fla.	89	28	57	.95	.90
S. Atlantic	11,879	4,677	11,201	.94	.85
Ky.	585	79	232	1.15	1.05
Tenn.	1,323	300	580	1.00	.95
Ala.	945	221	908	.85	.80
Miss.	531	132	494	.95	1.00
Ark.	1,806	352	672	1.05	1.10
La.	172	91	158	1.05	1.10
Okla.	523	280	102	.90	1.20
Tex.	1,519	792	782	.90	1.30
S. Central	7,404	2,247	3,928	.95	1.04
Idaho	195	178	40	.45	1.45
Colo.	847	1,201	578	.42	1.30
N.Mex.	77	44	13	1.30	1.75
Ariz.	74	83	67	1.50	1.75
Utah	539	748	62	.34	1.40
Nev.	5	4	2	.75	1.75
Wash.	953	1,320	240	.35	1.25
Oreg.	273	348	227	.60	1.15
Calif.	[2] 23,059	[2] 22,794	[2] 22,752	.25	.48
Clingstone [3]	[2] 14,867	[2] 14,168	[2] 14,876	.22	.45
Freestone [4]	[2] 8,192	[2] 8,626	7,876	.27	.53
Western	[2] 26,023	[2] 26,720	[2] 23,981	.28	.53
United States	[2] 56,575	[2] 42,443	[2] 45,326	.53	.76

[1] Preliminary.

[2] Includes some quantities not harvested on account of market conditions as follows: 1926, 1,462,000 bushels in Georgia and Northern States, 1928, 1,000,000 bushels in Georgia; California, 1927, clingstone, 2,708,000 bushels; 1928, clingstone, 2,917,000 bushels, 1930, clingstone, 10,138,000 bushels including 6,180,000 sold but left on the trees, freestone, 500,000 bushels; 1932, clingstone, 6,376,000 bushels, freestone, 334,000 bushels; 1933, clingstone, 3,647,000 bushels, including 1,480,000 sold but left on the trees. Prices and value are computed on the quantity actually harvested plus a quantity of fruit that was sold but left on trees in 1930 and 1933.

[3] Mainly for canning. [4] Mainly for drying.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

Estimates of production for 1929-32 revised on basis of 1930 census. Earlier years not so revised.

TABLE 225.—*Peaches: Average l.c.l. price to jobbers, New York and Chicago, 1924–33*

Market and season	6-basket carrier: June	6-basket carrier: July	6-basket carrier: August	Bushel basket: June	Bushel basket: July	Bushel basket: August	Bushel basket: September	Bushel basket: October
New York:	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
1924	2.97	2.25	2.31	------	1.74	2.18	2.09	2.46
1925	3.43	2.24	2.23	3.38	2.22	2.18	2.74	2.46
1926	3.14	1.79	1.28	3.05	1.74	1.48	1.26	1.17
1927	3.22	2.59	2.65	3.10	2.80	2.94	2.19	2.59
1928	3.48	2.17	1.62	3.61	2.01	1.69	2.05	1.74
1929	3.86	3.45	2.70	3.85	2.95	2.56	2.52	------
1930	3.58	3.22	2.62	4.08	2.94	2.63	2.10	------
1931	2.96	2.38	1.22	2.97	2.14	1.50	1.21	------
1932	2.98	2.94	1.26	------	2.81	1.46	1.39	.78
1933	3.06	1.70	1.57	3.14	2.06	1.79	1.93	------
Chicago:								
1924	1.98	1.88	2.07	1.84	1.86	2.30	2.91	2.17
1925	3.11	2.35	3.01	3.08	2.45	3.16	2.72	2.38
1926	3.02	1.96	1.53	2.44	2.02	1.79	1.76	1.44
1927	2.30	2.32	------	2.35	2.66	2.81	2.30	------
1928	3.40	2.09	1.44	------	2.18	1.94	2.15	2.11
1929	4.08	3.45	------	------	2.93	2.05	2.31	------
1930	3.55	3.18	2.45	2.97	3.04	3.02	2.34	------
1931	------	2.03	1.27	------	2.01	1.27	1.17	------
1932	------	3.02	1.57	------	3.05	1.72	1.30	.95
1933	2.34	1.68	------	2.56	1.94	2.11	2.22	------

Bureau of Agricultural Economics. Compiled from daily market reports from Bureau representatives in the markets. Average prices as shown are based on stock of good merchantable quality and condition; they are simple averages of daily range of selling prices.

TABLE 226.—*Peaches: Car-lot shipments, by State of origin, 1924–33* [1]

State	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
New York	3,436	3,055	2,367	1,159	1,744	865	2,310	956	1,920	879
New Jersey	1,461	1,047	1,145	1,089	41	544	24	88	47	5
Pennsylvania	448	204	828	514	806	732	330	658	587	277
Ohio	14	516	434	441	426	2	98	122	106	2
Indiana	25	18	416	245	398	676	(3)	533	--------	225
Illinois	860	579	3,010	1,591	1,975	4,637	(3)	5,307	46	1,783
Michigan	105	264	675	397	514	312	183	259	292	3
Missouri	217	14	34	14	2	56	--------	83	--------	7
Delaware	635	148	723	524	30	540	31	495	29	2
Maryland	637	70	652	366	291	495	83	149	60	156
Virginia	530	39	388	461	324	623	19	446	87	741
West Virginia	326	2	353	211	166	246	32	114	39	169
North Carolina	1,652	2,037	2,155	1,702	3,242	1,250	2,172	2,564	1,833	1,280
South Carolina	91	239	448	644	865	602	747	862	523	719
Georgia	13,611	13,513	17,963	11,882	15,926	5,298	8,623	13,589	2,024	7,896
Kentucky	17	6	69	43	87	60	--------	217	3	27
Tennessee	752	605	1,806	292	2,077	1,144	256	1,364	6	245
Alabama	132	224	375	11	325	81	42	232	--------	15
Mississippi	7	32	88	--------	76	60	7	123	--------	5
Arkansas	2,785	2,300	2,529	1,780	4,013	2,679	41	4,187	233	256
Oklahoma	336	113	20	118	17	121	--------	4	3	--------
Texas	763	1,070	964	49	278	569	21	143	20	27
Idaho	47	2	78	38	125	135	1	31	34	22
Colorado	1,772	834	1,271	1,709	1,117	1,765	1,369	1,507	1,743	847
Utah	1,109	94	774	798	694	550	341	221	447	--------
Washington	412	991	1,419	248	1,741	1,554	609	912	892	124
Oregon	36	47	50	21	76	51	48	29	33	34
California	7,264	12,785	17,416	15,145	19,589	9,780	21,072	10,859	9,739	12,494
Other States	17	10	15	11	10	24	31	16	5	8
Total	39,497	40,858	58,465	41,503	56,975	35,451	38,490	46,070	20,751	28,248

[1] Crop-movement season extends from May through October of a given year. Figures for New York for 1924, 1926, and 1932 include shipments in November following the regular crop-movement season.
[2] Preliminary. [3] No shipments because of frost killing.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 227.—*Pears: Total production, average price per bushel received by producers, and exports of the United States, 1919–33*

Year	Production	Price [1]	Farm value, basis average price	Domestic exports, year beginning July [2]				
				Fresh [3]	Canned [3]	Dried	Total in terms of fresh	Percentage of production
	1,000 bushels	*Dollars*	*1,000 dollars*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 bushels*	*Percent*
1919	*14,204*	--------	--------	--------	--------	--------	--------	--------
1919	15,006	1.84	27,614	--------	--------	--------	--------	--------
1920	16,805	1.66	27,865	--------	--------	--------	--------	--------
1921	11,297	1.71	19,268	--------	--------	--------	--------	--------
1922	20,705	1.06	21,943	36,785	49,358	--------	2,823	13.6
1923	17,845	1.21	21,570	50,237	38,431	--------	2,648	14.8
1924	18,866	1.42	26,689	41,452	53,851	--------	3,107	16.5
1925	20,720	1.40	29,066	71,205	75,876	--------	4,645	22.4
1926	25,249	.89	22,399	73,877	66,104	--------	4,293	17.0
1927	18,373	1.32	24,298	51,056	52,671	--------	3,258	17.7
1928	24,212	1.02	24,663	82,847	82,652	[4] 2,626	5,388	22.3
1929	*18,500*	--------	--------	--------	--------	--------	--------	--------
1929	21,138	1.43	30,152	62,024	54,709	3,655	3,876	18.3
1930	[5] 25,633	.75	18,292	134,670	74,355	8,037	6,574	25.6
1931	[5] 23,346	.60	13,667	90,702	71,570	6,079	5,378	23.0
1932	[5] 22,050	.39	7,627	119,987	60,762	6,257	5,553	25.2
1933 [6]	[5] 21,192	.52	10,252	--------	--------	--------	--------	--------

[1] From 1919 to 1925, Nov. 15 price; 1926–33, average price for the crop marketing season.
[2] Canned pears converted to terms of fresh on the basis that 1 pound canned fruit is equivalent to 2 pounds fresh; dried pears converted to terms of fresh on the basis that dried pears equal 25 percent of fresh; 48 pounds fresh equals 1 bushel. No imports of pears reported. Compiled from Monthly Summary of Foreign Commerce of the United States, June issues, 1923–26, January and June issues, 1927–33.
[3] Exports were reported in value only, prior to July 1, 1922.
[4] January–June, 1929. Not previously reported.
[5] Includes some quantities not harvested on account of market conditions as follows: 1,292,000 bushels in 1930, 625,000 bushels in 1931, 2,666,000 bushels in 1932, and 1,667,000 in 1933. Prices and value are computed on harvested crop.
[6] Preliminary.

Bureau of Agricultural Economics; production figures are estimates of the Crop Reporting Board.
Italic figures are census returns. Prices are based upon returns from crop reporters. Estimates of production for 1929–32 revised on basis of 1930 census. Earlier years not so revised.

TABLE 228.—*Pears: Production and average price per bushel received by producers, by States, average 1926–30, annual 1932 and 1933*

State and division	Production			Price for crop of—	
	Average, 1926–30	1932	1933 [1]	1932	1933 [2]
	1,000 bu.	*1,000 bu.*	*1,000 bu.*	*Dol.*	*Dol.*
Me	11	12	11	1.00	1.05
N.H	12	12	12	.95	.95
Vt	9	11	7	1.05	1.15
Mass	65	63	57	.85	.85
R.I	10	10	8	1.00	1.00
Conn	41	28	20	.85	1.00
N.Y	1,670	1,745	900	.46	.85
N.J	349	112	71	.60	.65
Pa	482	384	366	.65	.75
N. Atlantic	2,647	2,377	1,452	.52	.82
Ohio	310	313	336	.60	.75
Ind	214	80	100	.60	.65
Ill	507	71	320	.75	.70
Mich	682	783	532	.45	.80
Iowa	62	78	58	.75	.95
Mo	307	51	146	.85	.75
Nebr	33	38	17	.95	1.40
Kans	174	35	90	.95	.95
N. Central	2,288	1,449	1,599	.56	.78
Del	135	35	20	.35	.85
Md	195	92	66	.55	.60
Va	254	87	270	.75	.60
W.Va	53	23	57	.90	.90
N.C	184	113	228	.85	.75
S.C	102	54	94	.80	.80
Ga	183	106	114	.65	.80
Fla	51	44	25	.50	.85
S. Atlantic	1,158	554	874	0.68	0.72
Ky	121	37	80	.90	.80
Tenn	214	59	94	.85	.95
Ala	214	132	132	.65	.85
Miss	177	107	85	.50	.85
Ark	105	34	58	.75	.95
La	63	48	31	.70	1.00
Okla	138	46	69	1.00	1.00
Tex	436	182	104	.80	1.05
S. Central	1,468	645	653	.74	.92
Idaho	66	60	59	.60	1.00
Colo	406	377	271	.40	.65
N.Mex	36	44	9	.95	1.35
Ariz	14	15	13	.90	1.45
Utah	80	76	47	.75	1.30
Nev	5	5	4	.85	1.50
Wash	3,275	3,723	4,264	.30	.40
Oreg	2,523	2,808	2,738	.40	.45
Calif	[3] 8,955	[3] 9,917	[3] 9,209	.30	.44
Western	[3] 15,360	[3] 17,025	[3] 16,614	.33	.44
United States	[3] 22,921	[3] 22,050	[3] 21,192	.39	.52

[1] Preliminary.
[2] Average price for 6 months.
[3] Includes some quantities not harvested on account of market conditions as follows: 1930, 1,292,000 bushels; 1932, 2,666,000 bushels; 1933, 1,667,000 bushels. Prices and value are computed on harvested crop.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.
Estimates of production for 1929–32 revised on basis of 1930 census. Earlier years not so revised.

TABLE 229.—*Pears: Car-lot shipments, by State of origin, 1923–24 to 1932–33*

State	Crop-movement season [1]									
	1923–24	1924–25	1925–26	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
New York	1,701	2,978	4,510	2,263	1,694	1,590	547	2,661	831	2,342
New Jersey	76	60	52	47	19	16	4	19	2	1
Ohio	33	47	62	100	130	104	33	77	26	34
Illinois	318	595	614	858	228	370	787	154	1,058	--------
Michigan	543	394	151	457	536	449	147	469	131	490
Delaware	541	273	128	249	49	1	20	13	7	25
Maryland	63	30	29	33	32	27	42	9	14	36
Alabama	60	27	66	12	93	71	152	135	46	37
Texas	99	129	121	144	213	39	231	100	105	92
Colorado	696	955	717	750	737	264	1,082	249	397	125
Utah	65	81	29	77	34	49	47	38	1	13
Washington	4,274	2,456	3,560	5,278	2,589	5,868	4,035	6,157	4,657	3,743
Oregon	2,575	1,483	2,225	2,909	2,977	4,437	4,211	5,123	2,824	3,574
California	7,143	6,312	8,718	11,673	9,215	11,003	9,465	13,490	9,804	7,329
Other States	402	426	275	359	198	146	344	133	154	67
Total	18,589	16,246	21,257	25,209	18,744	24,434	21,147	28,827	20,057	17,908

[1] Crop movement season covers 12 months, from June of one year through May of the following year. Figures for California for 1930–31, 1931–32, and 1932–33 include shipments in month preceding and following the regular crop-movement season.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 230.—*Peas, green, commercial crop: Acreage, production, and season average price per bushel or per ton received by producers; average 1927–31, and annual 1932 and 1933*

Utilization and State	Acreage			Production			Price for crop of—		
	Average 1927–31	1932	1933	Average 1927–31	1932	1933	Average 1927–31	1932	1933
	Acres	*Acres*	*Acres*	*1,000 bushels* [1]	*1,000 bushels* [1]	*1,000 bushels* [1]	*Dollars*	*Dollars*	*Dollars*
For market	69, 150	111, 440	110, 510	5, 648	[2] 7, 075	8, 428	1. 64	1. 27	0. 92
				Short tons [3]	*Short tons* [3]	*Short tons* [3]			
For manufacture:									
Maine	1, 150	1, 340	1, 480	1, 010	1, 210	1, 320	67. 20	46. 00	44. 00
New York	31, 380	24, 700	27, 800	24, 600	12, 350	14, 320	59. 60	44. 00	41. 00
Pennsylvania	1, 730	1, 800	2, 000	1, 580	1, 530	1, 650	58. 00	45. 00	43. 50
Ohio	4, 790	3, 300	3, 800	3, 290	1, 400	1, 420	50. 40	36. 00	29. 00
Indiana	4, 980	5, 400	4, 300	5, 180	4, 540	1, 940	50. 00	31. 60	31. 10
Illinois	11, 240	15, 400	16, 500	9, 960	12, 320	7, 260	53. 90	44. 40	38. 90
Michigan	9, 930	9, 400	10, 700	7, 160	3, 670	4, 550	49. 20	36. 00	35. 00
Wisconsin	103, 400	75, 000	89, 000	90, 670	35, 620	53, 400	58. 00	45. 50	44. 00
Minnesota	12, 400	14, 700	17, 000	9, 420	12, 500	9, 440	49. 20	42. 00	43. 90
Delaware	2, 520	1, 750	2, 250	2, 100	480	1, 960	60. 00	45. 00	41. 30
Maryland	11, 860	11, 550	11, 300	10, 180	6, 930	9, 040	59. 20	46. 40	45. 60
Montana	[4] 3, 320	2, 300	2, 540	[4] 3, 790	2, 760	2, 790	[4] 46. 50	36. 00	30. 00
Colorado	3, 100	2, 770	2, 330	2, 710	1, 700	1, 960	49. 20	34. 80	33. 30
Utah	10, 110	6, 500	9, 300	12, 330	7, 080	9, 070	55. 60	46. 40	41. 50
Washington	[4] 2, 110	2, 600	3, 200	[4] 1, 880	3, 460	5, 120	[4] 57. 30	42. 20	39. 00
Other States [5]	5, 890	9, 290	9, 630	5, 670	9, 380	10, 740	57. 69	48. 29	46. 93
Total	218, 690	187, 800	213, 130	190, 380	116, 930	135, 980	56. 55	43. 75	42. 25

[1] Bushels containing approximately 32 pounds, unshelled.
[2] Includes some quantities not harvested on account of market conditions; 110,000 bushels in 1932. Price refers to harvested portion of crop.
[3] Reported on shelled basis.
[4] Short-time average.
[5] Other States, includes California, Idaho, Iowa, Kansas, Nebraska, New Jersey, Oklahoma, Oregon, Tennessee, Virginia, and Wyoming.

Bureau of Agricultural Economics; estimates based upon returns from crop reporters and canning establishments.

TABLE 231.—*Peas, green: Car-lot shipments, by State of origin, 1925–33* [1]

State	1925	1926	1927	1928	1929	1930	1931	1932	1933 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
New York	885	1, 110	975	837	731	892	431	351	123
New Jersey	20	27	40	38	28	1	13	1	1
Maryland	48	55	54	68	52	2	13		
Virginia	303	288	259	281	222	129	232	75	90
North Carolina	491	596	570	685	368	482	554	284	335
South Carolina	104	167	207	247	244	265	256	71	106
Florida	5		9	14	31	6	130	146	331
Mississippi	149	233	243	250	199	234	282	46	100
Idaho	13	40	101	176	238	407	415	349	322
Colorado	35	58	149	348	459	463	559	590	445
Washington	43	64	111	152	334	791	539	829	1, 087
California	569	803	1, 361	1, 642	2, 205	3, 494	3, 016	4, 891	5, 912
Other States	42	127	100	63	77	128	120	217	195
Total	2, 707	3, 568	4, 179	4, 801	5, 188	7, 294	6, 560	7, 850	9, 047

[1] Crop-movement season is for calendar year, except Florida and Texas, which begin in October of the preceding year.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 232.—*Peas, canned: Pack [1] in the United States, 1921–33*

State	Season												
	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
	1,000 cases	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*
New York	1,382	2,137	2,541	2,931	2,385	2,624	1,668	2,222	1,683	3,164	1,786	1,021	1,279
New Jersey [2]	345	153	199	331	257	143	267	242	383	74	298	49	[3] 220
Ohio	241	225	384	430	232	278	205	336	337	208	398	131	140
Indiana	182	268	367	483	86	500	90	427	404	564	711	412	177
Illinois	331	516	586	697	357	680	563	617	767	1,560	1,003	1,149	671
Michigan	317	455	392	710	451	723	399	542	558	880	434	291	(4)
Wisconsin	4,063	7,042	6,961	10,390	10,003	9,287	6,549	9,248	9,399	10,492	5,057	3,346	5,163
Minnesota [5]	-----	-----	254	470	432	446	497	722	926	1,333	617	1,161	886
Maryland	533	489	591	873	956	840	986	1,030	1,469	400	1,243	639	987
Utah	376	751	918	830	1,346	1,029	802	1,154	1,241	1,662	676	752	882
California	84	496	239	282	271	222	(4)	(4)	(4)	(4)	(4)	(4)	(4)
Other States	353	510	516	888	1,040	937	910	1,403	1,363	1,698	1,063	1,366	2,488
United States	8,207	13,042	13,948	19,315	17,816	17,709	12,936	17,943	18,530	22,035	13,286	10,367	12,893

[1] Stated in cases of 24 No. 2 cans.
[2] Includes Delaware through 1932.
[3] Figure for Delaware; New Jersey included in "Other States."
[4] Included in "Other States."
[5] Previous to 1923, included in "Other States."

Bureau of Agricultural Economics; compiled from National Canners' Association, 1921–26; Bureau of Census, 1927–29, beginning 1930, Foodstuffs Division, Bureau of Foreign and Domestic Commerce.

TABLE 233.—*Pecans: Production and price per pound received by producers Dec. 1, by States, average 1926–30, annual 1932 and 1933*

State	Production									Price Dec. 1					
	Improved varieties			Seedling varieties			Total			Improved varieties		Seedling varieties		All varieties	
	Average, 1926–30	1932	1933 [1]	Average, 1926–30	1932	1933 [1]	Average, 1926–30	1932	1933 [1]	1932	1933	1932	1933	1932	1933
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*Ct.*	*Ct.*	*Ct.*	*Ct.*	*Ct.*	*Ct.*
Ill	0	0	0	157	175	150	157	175	150	-----	-----	7.0	7.5	7.0	7.5
Mo	10	20	22	730	1,230	1,328	740	1,250	1,350	12.0	13.0	6.0	7.0	6.1	7.1
N.C	424	430	400	263	145	300	687	575	700	17.0	19.0	11.0	12.5	15.5	16.3
S.C	640	640	1,020	216	110	180	856	750	1,200	14.0	15.0	9.5	10.0	13.3	14.2
Ga	5,520	2,650	5,860	780	350	440	6,300	3,000	6,300	13.0	12.0	6.2	6.0	12.2	11.6
Fla	996	425	1,080	366	200	270	1,362	625	1,350	14.0	12.0	8.0	7.0	12.2	11.0
Ala	1,950	1,230	2,650	492	170	350	2,442	1,400	3,000	13.0	15.0	6.5	7.0	12.2	14.1
Miss	2,224	650	2,475	2,416	1,385	2,025	4,640	2,035	4,500	14.5	12.5	7.5	7.5	9.7	10.2
Ark	77	60	120	1,673	1,490	2,040	1,750	1,550	2,160	14.0	14.5	6.5	6.5	6.8	6.9
La	699	550	1,050	4,151	3,150	5,950	4,850	3,700	7,000	13.0	10.5	7.0	6.0	7.9	6.7
Okla	64	190	95	12,916	18,810	9,405	12,980	19,000	9,500	13.0	13.5	3.5	5.4	3.6	5.5
Tex	536	550	720	22,164	18,950	23,280	22,700	19,500	24,000	13.0	15.0	4.0	5.8	4.3	6.1
U.S	13,140	7,395	15,492	46,324	46,165	45,718	59,464	53,560	61,210	13.5	13.0	4.3	6.0	5.6	7.8

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 234.—*Peppers, commercial crop for market: Acreage, production, and season average price per bushel received by producers, average 1927–31, annual 1932 and 1933*

Marketing season	Acreage			Production			Price for crop of—		
	Average, 1927–31	1932	1933	Average, 1927–31	1932	1933	Average, 1927–31	1932	1933
	Acres	*Acres*	*Acres*	*1,000 bushels* [1]	*1,000 bushels* [1]	*1,000 bushels* [1]	*Dollars*	*Dollars*	*Dollars*
Fall	2,110	2,350	2,000	458	504	374	1.79	0.90	1.11
Early	4,460	6,400	6,900	1,217	1,385	1,860	1.40	.99	.47
Second early	2,140	1,460	1,640	333	203	294	.83	.93	.56
Intermediate	6,570	5,900	6,000	1,556	1,413	1,356	.58	.38	.30
Late	690	1,160	1,050	188	389	343	.83	.53	.50
Total	15,970	17,270	17,590	3,752	3,894	4,227	.98	.71	.48

[1] Bushels containing approximately 22 pounds.

Bureau of Agricultural Economics; estimates based upon returns from crop reporters.

TABLE 235.—*Plums and prunes: Production and average price per ton received by producers, by States, average 1926–30, annual 1932 and 1933*

Crop and State	Production			Price for crop of—	
	Average, 1926–30	1932	1933 [1]	1932	1933 [1]
Plums and fresh prunes:	*Short tons*	*Short tons*	*Short tons*	*Dollars*	*Dollars*
California	63,200	[2] 68,000	[2] 57,000	17.15	24.35
Idaho	21,980	26,000	4,320	6.50	18.00
Oregon	22,880	36,000	28,000	6.50	17.00
Washington	16,545	21,500	22,820	7.50	17.00
Total	124,605	[2] 151,500	[2] 112,140	11.02	20.54
Prunes, dried: [3]					
California	[2] 194,460	[2] 172,000	180,000	55.00	80.00
Oregon	[2] 26,100	20,000	15,000	52.00	70.00
Washington	4,380	3,000	1,750	50.00	74.00
Total	[2] 224,940	[2] 195,000	196,750	54.61	79.19

[1] Preliminary.
[2] Includes some quantities not harvested on account of market conditions as follows: Plums, California, 1932, 10,000 tons, 1933, 7,000 tons; prunes, dried, California, 1930, 13,000 tons, 1932, 4,000 tons; Oregon, 1930, 8,000 tons. Prices and value are computed on the harvested crop.
[3] To convert California estimates to fresh fruit basis, multiply by 2½. In other States the ratio ranges from 3 to 4 fresh to 1 dried.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board

TABLE 236.—*Potatoes: Acreage, production, value, foreign trade, etc., United States, 1909–33*

Year	Acreage harvested	Average yield per acre	Production	Price per bushel received by producers Dec. 1 [1]	Farm value, basis Dec. 1 price	Wholesale price per bushel at New York [2]	Foreign trade, year beginning July: Domestic exports [3]	Foreign trade, year beginning July: Imports [3]	Foreign trade, year beginning July: Net balance [3 4]
	1,000 acres	*Bushels*	*1,000 bushels*	*Cents*	*1,000 dollars*	*Cents*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1909	*3,669*	*106.1*	*389,195*						
1909	3,669	107.5	394,553	54.2	213,679	49	999	353	+646
1910	3,720	93.8	349,032	55.7	194,566	54	2,384	219	+2,177
1911	3,619	80.9	292,737	79.9	233,778	106	1,237	13,735	−12,283
1912	3,711	113.4	420,647	50.5	212,550	62	2,028	337	+1,693
1913	3,668	90.4	331,525	68.7	227,903	78	1,794	3,646	−1,823
1914	3,711	110.5	409,921	48.7	199,460	47	3,135	271	+2,866
1915	3,734	96.3	359,721	61.7	221,992	103	4,018	210	+3,810
1916	3,565	80.5	286,953	146.1	419,333	238	2,489	3,079	−558
1917	4,384	100.8	442,108	122.8	542,774	129	3,453	1,180	+2,273
1918	4,295	95.9	411,860	119.3	491,527	127	3,689	3,534	+205
1919	*3,252*	*89.3*	*290,428*						
1919	3,300	90.1	297,341	191.1	568,259	284	3,723	6,941	−3,212
1920	3,301	111.8	368,904	133.2	491,561	103	4,803	3,423	+1,399
1921	3,598	90.4	325,312	113.5	369,109	123	2,327	2,110	+222
1922	3,946	106.3	419,288	68.6	287,792	97	2,980	572	+2,408
1923	3,378	108.5	366,356	91.5	335,310	118	3,075	564	+2,512
1924	*2,911*	*121.1*	*352,462*						
1924	3,110	123.7	384,837	71.5	274,972	78	3,653	478	+3,187
1925	2,819	105.6	297,567	166.3	494,765	238	1,824	5,420	−3,575
1926	2,813	114.6	322,350	136.3	439,469	161	2,092	6,349	−4,205
1927	3,166	116.5	368,813	108.9	401,788	129	2,424	3,803	−1,313
1928	3,469	122.7	425,626	57.2	243,542	76	3,165	2,698	+528
1929	*2,944*	*109.5*	*322,416*						
1929	2,973	110.2	327,652	131.5	430,950	163	2,386	6,006	−3,521
1930	3,030	109.8	332,693	91.5	304,282	111	1,548	5,729	−4,155
1931	3,366	110.8	372,994	46.4	173,150	61	816	1,493	−585
1932	3,381	105.9	358,009	38.8	138,877	61	973	440	+534
1933 [5]	3,184	99.6	317,143	82.5	261,634				

[1] Beginning with 1919 prices are weighted average prices for crop marketing season.
[2] Compiled from Producers Price Current. Prices 1909–19 are averages of the high and low weekly quotations of New York potatoes, October–June, converted from dollars per 180 pounds to cents per bushel; beginning 1920, season September–May.
[3] Compiled from Commerce and Navigation of the United States, 1909–17; Foreign Commerce and Navigation of the United States, 1918; Monthly Summary of Foreign Commerce of the United States, June issues, 1919–26, January and June issues, 1927–33, and official records of the Bureau of Foreign and Domestic Commerce.
[4] The difference between total exports (domestic exports plus reexports) and total imports; + indicates net exports and − indicates net imports.
[5] Preliminary.

Bureau of Agricultural Economics.
Acreage, yield, and production figures are estimates of the Crop Reporting Board, revised, 1919–28. See introductory text; italic figures are census returns. Prices received by producers are based upon returns from crop reporters. See 1927 Yearbook, p. 881, for data for earlier years.

TABLE 237.—*Potatoes:* [1] *Acreage, yield, production, and weighted average price per bushel received by producers, by States, averages, and annual 1932 and 1933*

State and group	Acreage harvested: Average, 1926–30	Acreage harvested: 1932	Acreage harvested: 1933 [2]	Yield per acre: Average, 1921–30	Yield per acre: 1932	Yield per acre: 1933 [2]	Production: Average, 1926–30	Production: 1932	Production: 1933 [2]	Price for crop of—: 1932	Price for crop of—: 1933 [3]
SURPLUS LATE POTATO STATES	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Bu.*	*Bu.*	*Bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*Cents*	*Cents*
Maine	161	170	150	253	238	280	40,735	40,460	42,000	25	70
New York	218	210	200	113	135	123	24,905	28,350	24,600	40	98
Pennsylvania	196	195	189	106	110	113	21,477	21,450	21,357	48	99
Total	575	575	539	144.7	157.0	163.2	87,118	90,260	87,957	35.2	84.9
Michigan	240	260	265	97	115	78	21,891	29,900	20,670	26	73
Wisconsin	241	260	239	101	87	70	23,698	22,620	16,730	24	63
Minnesota	329	379	334	93	78	68	30,191	29,562	22,712	23	61
North Dakota	102	161	140	81	58	60	8,065	9,338	8,400	23	55
South Dakota	54	73	62	80	70	40	4,532	5,110	2,480	25	75
Total	966	1,133	1,040	93.7	85.2	68.3	88,377	96,530	70,992	24.3	64.7

See footnotes at end of table.

TABLE 237.—*Potatoes:* [1] *Acreage, yield, production, and weighted average price per bushel received by producers, by States, averages, and annual 1932 and 1933*—Con.

State and group	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1926–30	1932	1933 [2]	Average, 1921–30	1932	1933 [2]	Average, 1926–30	1932	1933 [2]	1932	1933 [3]
SURPLUS LATE POTATO STATES—continued	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Bu.*	*Bu.*	*Bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*Cents*	*Cents*
Nebraska	100	135	115	84	65	75	9,111	8,775	8,625	34	79
Montana	21	22	23	108	102	85	2,229	2,244	1,955	40	75
Idaho	94	99	92	196	200	212	19,582	19,800	19,504	22	56
Wyoming	19	33	31	109	45	97	2,240	1,485	3,007	35	72
Colorado	94	100	87	155	110	150	15,435	11,000	13,050	26	64
Utah	13	15	14	156	150	150	1,997	2,250	2,100	28	71
Nevada	5	2	2	149	150	125	657	300	250	40	69
Washington	52	40	41	166	160	180	9,111	6,400	7,380	41	67
Oregon	37	42	39	111	120	165	4,428	5,040	6,435	41	71
California	42	33	33	175	193	240	7,585	6,369	7,920	57	88
Total	476	521	477	142.7	122.2	147.2	72,376	63,663	70,226	32.5	68.2
Total surplus late	2,017	2,229	2,056	119.4	112.4	111.5	247,870	250,453	229,175	30.3	73.5
OTHER LATE POTATO STATES											
New Hampshire	9	8	8	130	165	180	1,295	1,320	1,440	55	102
Vermont	17	16	15	126	145	130	2,203	2,320	1,950	47	96
Massachusetts	13	13	15	116	150	155	1,420	1,950	2,325	70	127
Rhode Island	2	2	2	129	160	185	271	320	370	74	148
Connecticut	12	12	13	120	165	160	1,516	1,980	2,080	56	106
Total	53	51	53	123.3	154.7	154.1	6,705	7,890	8,165	57.4	110.8
West Virginia	36	41	37	94	85	63	3,562	3,485	2,331	57	113
Ohio	108	117	112	90	99	72	10,211	11,583	8,064	53	116
Indiana	50	61	57	85	90	56	4,580	5,490	3,192	46	99
Illinois	49	54	48	80	90	33	4,264	4,860	1,584	57	157
Iowa	75	74	75	88	110	68	6,928	8,140	5,100	39	103
Total	317	347	329	87.8	96.7	61.6	29,544	33,558	20,271	49.5	112.9
New Mexico	4	6	8	62	85	80	277	510	640	80	106
Arizona	3	3	3	75	90	80	237	270	240	92	103
Total	7	9	11	69.4	86.7	80.0	514	780	880	84.1	105.1
Total other late	377	407	393	92.7	103.8	74.6	36,764	42,228	29,316	51.6	112.1
30 late States	2,394	2,636	2,449	115.1	111.0	105.5	284,634	292,681	258,491	33.4	77.9
INTERMEDIATE POTATO STATES											
New Jersey	43	45	44	141	159	164	6,936	7,155	7,216	47	131
Delaware	5	6	6	82	86	74	408	516	444	53	105
Maryland	32	31	30	102	92	90	3,595	2,852	2,700	54	109
Virginia	112	94	93	126	103	93	15,464	9,682	8,649	61	105
Kentucky	49	60	62	83	77	66	4,374	4,620	4,092	64	116
Missouri	52	56	54	84	100	52	4,943	5,600	2,808	52	127
Kansas	45	44	42	93	117	58	5,008	5,148	2,436	41	137
Total	338	336	331	108.7	105.9	85.6	40,727	35,573	28,345	53.6	118.5
37 late and intermediate States	2,732	2,972	2,780	114.2	110.4	103.2	325,360	328,254	286,836	35.6	81.9
EARLY POTATO STATES											
North Carolina	69	68	77	96	97	95	6,927	6,596	7,315	68	87
South Carolina	23	17	16	122	85	109	2,894	1,445	1,744	88	90
Georgia	13	17	18	64	59	57	870	1,003	1,026	73	87
Florida	28	23	18	106	67	124	3,030	1,541	2,232	109	99
Tennessee	39	53	57	72	69	66	3,024	3,657	3,762	75	95
Alabama	26	36	32	75	69	72	1,976	2,484	2,304	84	77
Mississippi	9	14	13	71	70	62	632	980	806	72	89
Arkansas	31	37	39	72	71	67	2,390	2,627	2,613	64	87
Louisiana	34	40	41	60	54	57	2,012	2,160	2,337	84	81
Oklahoma	41	42	36	72	74	70	3,141	3,108	2,520	53	94
Texas	43	62	57	67	67	64	3,170	4,154	3,648	80	84
Total	358	409	404	80.8	72.8	75.0	30,067	29,755	30,307	74.5	88.1
United States	3,090	3,381	3,184	110.8	105.9	99.6	355,427	358,009	317,143	38.8	82.5

[1] Acreage and production estimates for each State cover the entire crop, whether commercial or noncommercial, early or late.
[2] Preliminary.
[3] Average price for 6 months.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 238.—*Potatoes, early commercial crop: Acreage, production, and season average price per bushel received by producers, by States; average 1927–31, annual 1932 and 1933*

Group and State	Acreage: Average, 1927–31	Acreage: 1932	Acreage: 1933	Production: Average, 1927–31	Production: 1932	Production: 1933	Price for crop of—: Average, 1927–31	Price for crop of—: 1932	Price for crop of—: 1933
	Acres	*Acres*	*Acres*	*1,000 bushels* [1]	*1,000 bushels* [1]	*1,000 bushels* [1]	*Dollars*	*Dollars*	*Dollars*
Fall:									
Texas	1,800	4,200	2,400	106	189	96	1.34	0.75	0.63
Early (sec. 1):									
Florida	27,800	21,500	17,000	3,095	1,443	2,163	1.62	1.28	.85
South	5,300	3,500	2,500	377	280	288	2.18	1.50	.90
North	22,500	18,000	14,500	2,718	1,163	1,875	1.54	1.23	.84
Hastings	19,700	15,000	12,500	2,380	1,005	1,625	1.55	1.30	.86
La Crosse	2,200	2,400	1,500	275	91	188	1.51	.64	.84
West	600	600	500	63	67	62	1.13	1.05	.40
Texas, lower Rio Grande Valley	12,500	10,400	10,300	1,073	728	855	1.65	1.26	.94
Total	40,300	31,900	27,300	4,168	2,171	3,018	1.62	1.28	.88
Early (sec. 2):									
Alabama	13,000	10,000	8,000	1,301	850	944	1.10	.72	.65
California	15,200	13,600	12,600	2,109	2,380	2,545	1.00	.66	.93
Georgia	2,200	1,400	800	296	140	140	1.23	.80	.80
Louisiana	21,100	19,000	20,000	1,520	1,235	1,360	1.21	.70	.72
Mississippi	1,000	1,500	1,100	95	114	77	1.17	.70	.75
South Carolina	17,900	9,000	7,000	2,531	963	1,155	1.14	.73	.70
Texas, other	13,200	16,800	12,400	1,057	1,260	887	1.09	.72	.67
Eagle Lake-Sugarland-Wharton	8,900	11,200	7,500	683	806	495	1.13	.74	.70
Other counties	4,300	5,600	4,900	374	454	392	1.01	.68	.63
Total	83,600	71,300	61,900	8,909	6,942	7,108	1.10	.70	.78
Second early:									
Arkansas	4,500	4,800	5,000	403	394	450	.96	.48	.87
North Carolina	35,000	23,500	27,500	4,723	3,642	4,070	1.05	.64	.77
Oklahoma	12,300	8,300	7,000	1,209	946	679	.98	.46	.88
Tennessee	1,800	1,500	2,100	153	105	189	1.07	.55	1.05
Total	53,600	38,100	41,600	6,488	5,087	5,388	1.03	.59	.80
Intermediate (sec. 1):									
Kansas	16,800	15,800	13,500	2,608	2,394	1,286	.69	.20	1.31
Kaw Valley	[2] 15,600	15,200	12,850	[2] 2,424	2,280	1,156	[2] .63	.19	1.30
Scott County	[2] 1,100	600	650	[2] 210	114	130	[2] .82	.32	1.45
Kentucky	5,100	5,000	4,500	624	525	369	.83	.35	1.30
Maryland	10,300	7,200	6,100	1,521	1,008	732	.81	.47	1.40
Missouri	5,300	5,900	6,600	848	1,180	792	.80	.36	1.40
Virginia	77,600	58,000	53,000	12,811	7,364	5,831	.85	.58	1.21
Norfolk district	12,300	7,900	7,700	1,836	1,327	1,001	.86	.59	1.10
Eastern Shore	60,800	47,000	42,400	10,339	5,640	4,494	.85	.58	1.25
Other	4,500	3,100	2,900	636	397	336	.76	.55	1.05
Total	115,100	91,900	83,700	18,412	12,471	9,010	.82	.47	1.26
Intermediate (sec. 2):									
Nebraska	1,700	2,000	1,700	301	520	391	.85	.25	1.30
New Jersey	32,200	36,000	34,000	5,603	5,940	5,780	.87	.48	1.23
Total	33,900	38,000	35,700	5,904	6,460	6,171	.87	.46	1.23
Grand total	328,300	275,400	252,600	43,987	33,320	30,791	.99	.59	1.02

[1] Bushels containing approximately 60 pounds.
[2] Short-time average.

Bureau of Agricultural Economics; estimates based upon returns from crop reporters.

TABLE 239.—*Potatoes: Production of certified seed, by States, average 1924–33, annual 1924–33*

State	Average 1924–33	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933[1]
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
California	10	0	12	12	18	12	12	4	8	7	12
Colorado	107	22	28	31	77	58	72	52	96	123	506
Idaho	297	0	278	371	866	350	204	315	226	151	212
Kentucky	14	7	15	23	25	9	21	9	9	12	12
Maine	3, 540	5, 053	2, 226	2, 295	3, 278	5, 094	3, 999	2, 741	3, 944	2, 921	3, 853
Maryland	33	0	8	18	32	22	40	17	66	57	73
Michigan	365	291	215	337	162	855	741	212	194	371	272
Minnesota	701	778	596	694	622	1, 163	911	548	662	437	602
Montana	96	32	68	113	181	237	72	69	62	64	61
Nebraska	305	80	121	60	182	152	463	663	384	392	552
New Hampshire	20	30	12	3	15	17	9	35	40	13	30
New Jersey	77	82	58	93	(2)	101	62	50	114	84	124
New York	469	363	211	225	323	470	572	716	819	550	437
North Dakota	426	102	171	182	321	540	412	372	413	825	918
Ohio	7	11	4	6	6	6	7	5	6	7	8
Oregon	105	16	28	46	88	154	137	74	137	188	185
Pennsylvania	67	65	26	41	30	60	70	46	91	103	137
South Dakota	33	0	24	29	50	59	63	23	38	40	4
Vermont	173	225	109	160	253	136	137	133	219	179	183
Washington	72	0	17	30	121	82	77	85	115	93	102
Wisconsin	254	357	163	197	243	448	294	261	259	173	150
Wyoming	188	0	21	138	260	350	185	300	187	131	304
Total	7, 359	7, 514	4, 411	5, 104	7, 153	10, 375	8, 560	6, 730	8, 089	6, 921	8, 737

[1] Preliminary.
[2] Less than 500 bushels.

Bureau of Agricultural Economics. Compiled from reports of State seed-potato certifying agencies.

TABLE 240.—*Potatoes: Car-lot shipments, United States, by months, 1924–33*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
1924	19, 762	20, 716	22, 940	19, 461	18, 736	20, 845	23, 626	16, 394	21, 387	34, 141	20, 852	13, 237	252, 097
1925	21, 715	20, 394	21, 639	20, 123	20, 215	19, 798	17, 765	14, 864	23, 569	33, 631	16, 286	11, 524	241, 523
1926	16, 185	14, 834	19, 974	14, 238	16, 903	23, 587	20, 310	15, 327	22, 978	36, 182	18, 419	13, 487	232, 424
1927	17, 974	17, 784	21, 497	20, 283	16, 691	22, 155	21, 053	17, 853	25, 003	38, 333	21, 124	13, 695	253, 445
1928	20, 278	22, 913	23, 710	17, 255	23, 740	29, 675	21, 048	16, 252	21, 127	29, 906	18, 232	13, 207	257, 343
1929	20, 096	20, 472	23, 059	20, 153	20, 360	24, 813	19, 583	17, 395	24, 441	31, 958	15, 706	15, 158	253, 194
1930	20, 302	19, 918	22, 108	19, 769	22, 803	25, 004	22, 326	16, 775	22, 415	29, 076	16, 502	15, 413	252, 411
1931	21, 241	20, 321	23, 888	21, 461	24, 080	27, 276	20, 434	12, 015	17, 715	24, 759	14, 510	13, 303	241, 003
1932	17, 767	18, 923	24, 876	21, 436	18, 385	22, 095	15, 932	8, 465	12, 924	14, 496	11, 941	12, 118	199, 358
1933[1]	16, 744	16, 518	24, 533	18, 206	19, 205	21, 379	12, 017	10, 795	17, 477	21, 907	13, 673	12, 247	204, 701

[1] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.

Shipments as shown in car lots include those by boat reduced to car-lot basis, 400 to 700 bushels to a carload. Shipments by truck not included.

Table 241.—*Potatoes: Acreage, yield per acre, and production in specified countries, average 1925–26 to 1929–30, annual 1932–33 and 1933–34*

Country	Acreage			Yield per acre			Production		
	Average, 1925–26 to 1929–30	1932–33	1933–34 [1]	Average, 1925–26 to 1929–30	1932–33	1933–34 [1]	Average, 1925–26 to 1929–30	1932–33	1933–34 [1]
NORTHERN HEMISPHERE	*1,000 acres*	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
North America:									
Canada	552	522	528	135.1	125.8	130.4	74,579	65,693	68,827
United States	3,048	3,381	3,184	114.3	105.9	99.6	348,402	358,009	317,143
Total	3,600	3,903	3,712	117.5	108.6	104.0	422,981	423,702	385,970
Europe:									
United Kingdom	800	795	811	248.1	261.8	253.4	198,501	208,165	205,469
Irish Free State	369	348	341	238.1	323.5		87,856	112,576	
Norway	120	123	120	263.3	309.2	285.6	31,592	38,030	34,273
Sweden	366	338	327	173.2	231.9	222.2	63,397	78,397	72,660
Denmark	173	172	189	209.5	278.2	262.5	36,243	47,855	49,604
Netherlands	433	435	379	280.0	290.7	264.0	121,249	126,473	100,051
Belgium	408	435	404	305.4	375.0	326.8	124,585	163,104	132,041
France	3,606	3,492	3,409	145.3	173.4	161.9	523,939	605,675	552,043
Spain	[2] 812	1,033	976	[2] 172.0	178.8	156.1	[2] 139,671	184,662	152,348
Italy	868	1,022	986	83.9	102.0	88.5	72,837	104,238	87,292
Switzerland	117	115	117	219.6	209.3	237.9	25,691	24,067	27,833
Germany	6,945	7,114	7,138	201.7	242.8	224.6	1,400,991	1,727,540	1,602,946
Austria	453	500	519	183.7	195.9	188.4	83,216	97,961	97,781
Czechoslovakia	1,738	1,807	1,831	178.4	188.6	160.6	310,025	340,843	294,024
Hungary	652	738	735	110.8	77.5	93.8	72,221	57,227	68,963
Yugoslavia	560	595		74.9	84.7		41,930	50,392	
Rumania	644	471	484	117.8	125.6		75,865	59,145	
Poland	6,125	6,709	6,791	158.7	164.2	152.6	972,152	1,101,364	1,036,155
Lithuania	347	428	441	155.1	164.7	142.2	53,811	70,503	62,699
Latvia	200	253	257	142.4	175.0	200.5	28,477	44,281	51,534
Estonia	166	166	169	158.1	173.3	192.4	26,245	28,762	32,521
Finland	171	190	200	160.9	190.2	227.8	27,522	36,133	45,561
Russia, European and Asiatic	13,496	15,101		118.1	97.3		1,594,077	1,469,733	
Total European countries reporting area and production, all years	24,500	25,865	25,799	176.0	196.6	182.4	4,312,365	5,085,280	4,705,798
Estimated European total, excluding Russia	26,200	27,500	27,400				4,532,000	5,345,000	4,962,000
Total Northern Hemisphere countries reporting area and production, all years	28,100	29,768	29,511	168.5	185.1	172.5	4,735,346	5,508,982	5,091,768
Estimated Northern Hemisphere total, excluding Russia and China	30,700	32,300	32,100				5,030,000	5,853,000	5,432,000
SOUTHERN HEMISPHERE									
Chile	93	138		145.8			13,557		
Argentina	345			85.0			29,325		
Australia	140			95.1			13,315		
Estimated Southern Hemisphere, total	2,000	2,400					112,000	145,000	
Estimated world total excluding Russia and China	32,700	34,700					5,142,000	5,998,000	

[1] Preliminary.
[2] 4-year average.

Bureau of Agricultural Economics.
Both acreage and production figures refer to the year of harvest. Harvests of the Northern Hemisphere are combined with those of the Southern Hemisphere which immediately follow; thus, for 1933–34 the crop harvested in the Northern Hemisphere countries in 1933 is combined with the Southern Hemisphere harvest which begins late in 1933 and ends early in 1934.

TABLE 242.—*Potatoes: Car-lot shipments, by State of origin, 1923–32*

State	Crop-movement season [1]									
	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Maine	34,764	43,145	38,830	42,607	40,945	41,111	61,404	53,381	53,224	44,043
New Hampshire	88	67	105	130	163	118	119	268	71	19
Vermont	234	161	144	247	223	145	163	503	224	97
New York	18,628	20,123	11,598	12,573	12,320	13,478	9,208	13,712	10,409	8,058
New Jersey	6,352	8,637	3,355	4,750	6,676	5,367	3,811	6,600	5,179	3,171
Pennsylvania	4,092	3,943	6,027	2,630	3,375	5,829	2,132	600	634	194
Ohio	173	66	617	265	339	296	493	264	144	94
Indiana	52	50	398	163	128	191	118	49	12	20
Illinois	261	270	151	112	14	94	32	54	76	55
Michigan	20,558	17,450	14,201	16,455	8,568	14,189	6,337	3,379	8,856	9,946
Wisconsin	17,137	16,031	16,025	18,153	15,455	15,850	14,709	10,484	13,351	9,629
Minnesota	33,602	31,695	23,163	25,049	33,482	20,456	22,923	16,346	19,209	14,362
Iowa	273	554	220	92	149	427	674	342	171	365
Missouri	810	1,194	919	1,616	1,294	2,362	984	2,016	1,473	2,365
North Dakota	10,384	6,063	4,810	4,815	7,933	6,333	6,026	4,687	7,277	4,526
South Dakota	3,860	1,886	1,024	518	2,537	1,403	2,144	749	79	1,330
Nebraska	4,833	2,918	4,342	3,228	6,039	4,784	7,212	9,160	8,307	4,294
Kansas	3,565	4,797	2,735	4,062	4,341	4,848	2,440	3,856	2,710	3,124
Delaware	207	90	30	52	214	27	54	8	24	13
Maryland	2,728	2,679	1,512	2,031	3,545	3,123	2,426	2,240	1,752	1,616
Virginia	15,923	23,608	15,882	16,212	23,717	27,679	21,177	21,731	18,644	12,823
West Virginia	85	88	88	119	177	360	412	87	165	138
North Carolina	3,478	6,568	4,040	6,713	7,555	9,736	6,003	7,355	8,681	5,876
South Carolina	4,210	5,268	3,674	5,223	3,943	4,706	3,809	4,544	5,030	1,666
Georgia	371	544	255	373	489	321	272	576	808	247
Florida	3,495	4,382	5,137	4,809	5,410	7,744	5,069	4,802	6,892	2,584
Kentucky	1,241	1,593	735	430	877	718	1,211	518	447	501
Tennessee	97	223	249	313	276	436	272	267	128	119
Alabama	1,384	2,920	1,046	2,222	2,102	3,133	1,541	2,728	4,712	1,874
Mississippi	88	202	30	38	68	147	114	119	368	188
Arkansas	231	449	537	526	508	239	514	814	837	483
Louisiana	825	1,425	1,280	1,429	1,298	1,727	1,102	2,327	4,410	1,656
Oklahoma	1,035	1,262	2,335	2,164	2,130	2,058	2,208	2,755	2,171	1,893
Texas	792	1,422	1,431	2,014	3,031	3,468	2,769	5,480	5,045	3,504
Montana	757	420	1,509	888	1,376	756	380	537	393	221
Idaho	15,626	11,942	18,271	17,329	28,305	18,887	19,011	32,903	25,916	22,526
Wyoming	687	652	998	763	2,021	1,385	1,731	2,775	2,142	821
Colorado	13,870	12,386	15,422	14,200	17,328	13,714	15,366	18,080	7,529	7,266
Arizona	84	15	27	64	61	75	50	49	80	70
Utah	1,017	727	1,162	1,078	954	454	939	1,044	954	613
Nevada	700	452	719	780	942	595	442	593	248	223
Washington	6,160	6,654	8,880	9,842	9,602	8,054	8,097	7,988	6,993	4,996
Oregon	1,615	927	1,494	2,719	2,339	1,653	1,560	2,881	3,068	2,515
California	5,696	6,492	6,159	7,184	7,904	7,666	7,769	7,887	6,959	5,742
Other States	27	10	55	48	56	23	58	39	21	95
Total	242,095	252,450	221,621	237,028	270,209	256,165	245,285	257,577	245,823	185,961

[1] Crop-movement season covers 19 months, from December through the second following June; i.e., the 1923 season begins in December 1922 and ends June 1924.
[2] Preliminary beginning January 1932.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis, 400 to 700 bushels to a carload. Shipments by truck not included.

TABLE 243.—*Potatoes: Average price per bushel received by producers United States, 1924–25 to 1933–34*

Year	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	109.0	111.3	81.0	68.8	63.5	64.1	70.2	72.3	71.4	70.5	70.6	84.4	80.0
1925–26	125.5	155.4	121.1	125.6	198.4	201.5	220.5	226.0	225.6	270.5	244.8	190.1	165.9
1926–27	174.6	140.5	130.6	126.4	141.3	137.0	139.1	134.1	127.0	126.8	146.0	191.0	147.3
1927–28	183.1	146.3	107.4	97.9	95.4	94.1	93.6	96.2	113.1	116.8	103.3	83.6	120.2
1928–29	77.4	71.9	64.8	58.0	56.9	57.7	58.9	59.5	58.4	55.3	59.3	64.0	66.3
1929–30	87.7	139.1	136.0	138.2	134.8	135.3	137.8	139.1	136.3	145.8	149.9	148.6	123.7
1930–31	129.4	108.8	109.9	101.4	95.0	89.8	90.3	86.7	84.9	90.8	87.0	75.3	106.9
1931–32	82.5	76.7	60.1	45.8	45.3	45.7	47.1	44.8	45.7	46.4	47.0	44.4	57.5
1932–33	48.8	51.4	38.0	34.4	34.4	36.8	37.4	37.0	39.0	42.4	43.7	49.4	40.9
1933–34	97.9	131.0	100.8	74.9	68.8	69.4	------	------	------	------	------	------	--------

Bureau of Agricultural Economics. Based upon returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; yearly price obtained by weighting monthly prices by car-lot shipments. For previous data see 1930 or earlier Yearbooks.

TABLE 244.—*Potatoes: International trade, average 1925–29, annual 1929–32*

Country	Calendar year									
	Average, 1925–29		1929		1930		1931		1932 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Netherlands	17,967	659	21,078	388	20,602	373	18,678	1,072	18,532	393
Belgium	9,012	5,090	10,889	8,037	9,726	9,562	9,958	10,880	9,993	6,025
Italy	7,761	1,933	5,690	4,223	4,853	1,960	4,533	4,215	4,987	1,939
Canada	7,118	688	7,145	1,189	7,128	844	6,136	329	2,061	188
Poland	3,855	12	3,240	8	1,478	4	4,794	9	2,634	5
Hungary	2,773	262	2,716	464	1,899	94	3,089	53	723	14
Spain	2,341	1,226	3,602	1,917	2,576	762	4,018	745	6,244	751
Argentina	2,138	213	2,338	482	2,616	557	1,591	18	1,393	70
Algeria	1,475	1,413	1,479	1,423	1,552	1,935	1,075	1,837	1,395	2,009
Czechoslovakia	1,062	951	1,147	438	347	443	139	423	88	293
Estonia	886	1	490	0	412	0	974	1	621	0
Irish Free State	865	647	676	762	386	557	1,271	320	943	139
Russia	756	[2] 9	[3] 157	[3] 0	1	0	4	0	0	0
Japan	606	0	603	0	752	0	772	0	662	0
China	193	0	312	0	365	0	455	0	449	62
Total	58,808	13,104	61,562	19,331	54,693	17,091	57,487	19,902	50,725	11,888
PRINCIPAL IMPORTING COUNTRIES										
Germany	5,346	16,623	4,170	11,305	3,671	11,755	18,175	4,355	7,425	4,613
United Kingdom	2,779	14,071	5,450	10,844	2,066	10,735	1,694	31,039	1,953	29,077
France	9,850	12,205	8,715	15,538	7,563	9,191	6,768	16,332	2,938	8,026
United States	2,434	4,284	2,735	4,276	1,899	5,060	1,060	4,567	912	727
Cuba	75	3,903	90	3,428	83	2,393	61	1,149	-------	-------
Austria	865	2,596	966	2,401	223	1,625	204	986	241	604
Switzerland	4	2,326	3	2,044	1	3,336	4	2,694	3	2,236
Portugal	120	1,748	70	2,363	63	2,489	140	1,069	-------	431
Uruguay	1	1,483	0	1,587	1	1,846	0	[3] 917	-------	-------
Brazil	0	1,182	0	1,488	0	1,093	4	265	3	219
Egypt	139	845	195	949	43	765	242	544	117	603
Denmark	67	719	46	301	38	332	794	210	980	72
Finland	1	624	0	928	0	256	7	81	7	106
Yugoslavia	98	469	29	938	67	84	34	25	4	139
Sweden	36	422	0	31	1	74	28	543	294	158
Tunis	2	411	1	489	1	510	2	482	1	499
Philippine Islands	0	358	0	406	0	340	0	468	0	457
Venezuela	0	161	0	273	0	260	0	269	0	229
Norway	44	62	24	3	21	1	228	28	479	0
Total	21,861	64,492	22,494	59,592	15,741	52,145	29,445	66,023	15,357	48,196

[1] Preliminary.
[2] 3-year average.
[3] International Yearbook of Agricultural Statistics.

Bureau of Agricultural Economics; official sources except where otherwise noted.
These figures do not include sweetpotatoes.

TABLE 245.—*Potatoes, Idaho, Russet Burbanks: Average car-lot price per 100 pounds to jobbers at Chicago, 1923–24 to 1933–34*

Season	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
1923–24	-------	-------	-------	1.91	1.78	2.28	2.24	2.51	2.68	2.10
1924–25	-------	-------	-------	2.04	-------	2.30	2.59	2.41	2.44	-------
1925–26	-------	-------	-------	3.99	3.67	4.19	3.95	4.15	4.78	3.51
1926–27	-------	-------	2.84	2.93	2.75	2.83	2.75	2.88	3.24	4.24
1927–28	-------	2.33	1.78	1.75	1.59	1.73	1.89	2.51	1.97	1.50
1928–29	-------	-------	1.63	1.65	1.60	1.64	1.68	1.60	1.83	1.95
1929–30	-------	3.11	2.98	2.86	2.88	3.18	3.14	3.19	3.79	3.59
1930–31	[1] 2.48	2.71	2.18	1.88	1.82	1.84	1.62	1.67	1.70	1.51
1931–32	1.84	1.72	1.43	1.39	1.52	1.54	1.40	1.38	1.32	1.25
1932–33	-------	1.30	1.14	1.19	1.17	1.19	1.23	1.22	1.37	1.43
1933–34	2.68	2.00	1.61	1.63	1.61	-------	-------	-------	-------	-------

[1] Less-than-car-lot sales to jobbers.

Bureau of Agricultural Economics; compiled from daily market reports from the Bureau representative at the market.

Average prices as shown are based on stock of U.S. No. 1 grade; they are simple averages of daily range of selling prices.

TABLE 246.—*Potatoes, Round Whites: Price per 100 pounds, car-lot sales to jobbers at Chicago, 1920–21 to 1933–34*

Season	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1920–21	8.09	6.55	3.46	2.46	1.84	2.03	1.50	1.29	1.16	1.23	0.98	0.87	------
1921–22	2.25	2.70	3.36	2.49	1.96	1.75	1.77	1.98	1.84	1.71	1.60	1.58	------
1922–23	3.33	2.29	1.69	1.22	.92	.86	.83	.92	.96	1.15	1.23	1.02	------
1923–24	3.46	2.90	2.33	1.68	1.05	.99	1.10	1.42	1.37	1.31	1.32	1.30	1.46
1924–25	[1] 2.70	1.87	1.42	1.35	.87	.92	.99	1.12	1.09	1.03	.81	1.17	1.24
1925–26	3.18	3.24	2.55	1.96	2.50	3.45	3.65	4.02	3.74	4.01	4.51	3.11	2.78
1926–27	3.82	2.36	2.30	2.44	2.26	2.36	2.24	2.29	1.98	1.95	2.13	3.18	3.91
1927–28	4.55	2.30	2.03	1.76	1.53	1.54	1.53	1.52	1.78	2.17	1.86	1.40	.98
1928–29	1.76	1.16	1.05	1.00	.81	.86	.90	1.00	.87	.78	.70	.80	.84
1929–30	2.53	2.75	2.49	2.49	2.38	2.27	2.31	2.51	2.47	2.39	2.85	2.73	------
1930–31	2.95	1.80	1.81	2.13	1.72	1.47	1.41	1.45	1.30	1.45	1.47	1.26	------
1931–32	1.61	1.49	1.26	.93	.82	.80	.82	.82	.80	.84	.82	.82	.79
1932–33	1.47	1.04	.78	.70	.64	.68	.74	.72	.74	.76	.75	.71	1.30
1933–34	2.17	2.92	2.61	1.64	1.20	1.22	1.29	------	------	------	------	------	------

[1] Less-than-car-lot sales to jobbers.

Bureau of Agricultural Economics; compiled from daily market reports from the Bureau representative at the market.

Average prices as shown are based on stock of U.S. No. 1 grade; they are simple averages of daily range of selling prices. Crop-movement season for Round Whites begins in June and ends in June of following year.

TABLE 247.—*Sweetpotatoes: Acreage, yield, production, and weighted average price per bushel received by producers, by States, averages, and annual 1932 and 1933*

State	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1926–30	1932	1933 [1]	Average, 1921–30	1932	1933 [1]	Average, 1926–30	1932	1933 [1]	1932	1933 [2]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Cents*	*Cents*
New Jersey	13	12	11	124	130	175	1,595	1,560	1,925	68	74
Indiana	3	4	4	118	110	100	301	440	400	62	87
Illinois	5	7	6	91	105	70	476	735	420	43	84
Iowa	2	3	3	91	100	90	209	300	270	73	132
Missouri	9	10	10	95	90	75	833	900	750	52	81
Kansas	4	6	5	120	120	98	542	720	490	54	97
Delaware	7	7	7	128	115	130	814	805	910	45	62
Maryland	9	8	6	143	111	140	1,388	888	840	50	61
Virginia	37	38	35	124	95	111	4,602	3,610	3,885	42	63
North Carolina	66	94	85	99	85	93	6,629	7,990	7,905	51	72
South Carolina	46	66	56	85	92	83	4,227	6,072	4,648	45	64
Georgia	84	109	95	79	82	80	6,971	8,938	7,600	74	59
Florida	20	25	21	86	60	70	1,760	1,500	1,470	79	73
Kentucky	15	25	20	87	88	92	1,277	2,200	1,840	62	69
Tennessee	54	75	50	100	88	90	5,468	6,600	4,500	39	64
Alabama	67	101	76	86	85	71	6,093	8,585	5,396	70	76
Mississippi	51	79	63	92	100	90	5,174	7,900	5,670	53	62
Arkansas	25	38	28	93	70	85	2,422	2,660	2,380	48	59
Louisiana	68	84	74	74	66	70	5,229	5,544	5,180	46	63
Oklahoma	17	22	18	90	72	78	1,566	1,584	1,404	47	62
Texas	48	100	78	78	76	80	3,795	7,600	6,240	40	63
California	11	13	10	103	100	95	1,031	1,300	950	58	120
United States	661	926	761	91.2	84.7	85.5	62,483	78,431	65,073	53.7	67.1

[1] Preliminary.
[2] Average price for 6 months.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 248.—*Sweetpotatoes: Acreage, production, weighted average price per bushel received by producers, and value, United States, 1919–33*

Year	Acreage harvested	Average yield per acre	Production	Price	Farm value, basis weighted average price	Year	Acreage harvested	Average yield per acre	Production	Price	Farm value, basis weighted average price
	1,000 acres	*Bushels*	*1,000 bushels*	*Cents*	*1,000 dollars*		*1,000 acres*	*Bushels*	*1,000 bushels*	*Cents*	*1,000 dollars*
1919	*803*	*97.3*	*78,092*	-------	-------	1926	646	98.3	63,531	117.5	74,629
1919	792	99.0	78,422	169.2	132,676	1927	724	98.3	71,156	109.0	77,539
1920	768	100.4	77,124	141.9	109,416	1928	638	93.5	59,650	118.4	70,637
1921	819	90.3	73,958	113.5	83,947	*1929*	*650*	*100.3*	*65,193*	-------	-------
1922	819	96.1	78,665	100.8	79,306	1929	646	100.6	64,963	117.1	76,081
1923	675	94.9	64,041	121.0	77,474	1930	649	81.8	53,117	108.2	57,482
1924	*467*	*80.2*	*37,444*	-------	-------	1931	785	80.3	63,043	72.5	45,688
1924	567	79.7	45,201	150.0	67,790	1932	926	84.7	78,431	53.7	42,154
1925	637	78.2	49,845	165.4	82,448	1933 [1]	761	85.5	65,073	67.1	43,686

[1] Preliminary.

Bureau of Agricultural Economics.
Acreage, yield, and production figures are estimates of the Crop Reporting Board, revised, 1919–28. See introductory text; italic figures are census returns. Prices are based upon returns from crop reporters.

TABLE 249.—*Sweetpotatoes: Car-lot shipments, by State of origin, 1923–24 to 1932–33*

State	Crop-movement season [1]									
	1923–24	1924–25	1925–26	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
New Jersey	1,528	1,894	1,357	1,770	1,225	1,223	1,090	1,078	1,531	844
Indiana	75	103	236	284	209	231	352	355	484	319
Illinois	81	73	101	151	119	85	164	193	211	281
Delaware	1,549	1,750	1,742	1,885	1,517	1,470	1,454	771	1,346	736
Maryland	1,123	1,155	1,520	2,283	2,256	2,106	1,859	975	862	434
Virginia	5,374	5,213	4,750	6,501	6,618	6,480	7,090	5,361	4,973	3,262
North Carolina	563	816	1,510	1,683	1,711	760	729	883	592	584
South Carolina	154	120	231	162	276	130	375	337	70	195
Georgia	610	1,018	674	678	667	227	527	348	335	148
Florida	62	175	241	185	159	69	125	114	166	70
Kentucky	30	31	90	302	185	121	268	222	479	334
Tennessee	726	1,137	2,592	4,972	3,587	2,915	3,692	2,903	2,410	2,498
Alabama	382	649	663	515	574	393	570	320	362	158
Mississippi	61	36	156	79	211	126	271	219	133	22
Arkansas	263	371	476	548	392	316	207	175	128	46
Louisiana	463	558	2,340	1,285	1,147	981	1,463	1,224	1,315	963
Oklahoma	110	107	216	268	294	255	102	78	16	40
Texas	535	221	485	702	1,284	717	802	717	593	238
California	684	466	1,161	1,186	805	767	728	869	632	520
Other States	159	174	318	316	187	173	174	234	190	186
Total	14,532	16,067	20,859	25,755	23,423	19,545	22,042	17,376	16,828	11,878

[1] Crop-movement season covers 12 months, from July of one year through June of the following year. Figures for certain States include shipments for month preceding or following the regular crop-movement season.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 250.—*Sweetpotatoes: Average price per bushel received by producers, United States, 1924–25 to 1933–34*

Year	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	130.7	151.4	157.0	145.1	130.3	140.1	145.5	160.2	180.8	196.2	189.1	170.2	149.7
1925–26	188.7	196.3	177.4	169.4	144.4	141.5	149.3	162.4	171.4	180.4	192.2	198.8	166.9
1926–27	185.6	189.0	153.9	110.6	88.5	94.0	97.8	109.0	112.3	112.8	118.9	136.0	118.7
1927–28	136.4	146.7	121.9	98.1	86.5	91.9	93.4	98.6	109.6	115.1	121.4	124.7	107.7
1928–29	119.5	131.0	120.9	111.2	100.2	101.8	104.2	113.7	117.0	120.8	125.9	129.8	113.4
1929–30	135.9	136.2	127.9	112.5	97.7	98.9	103.1	109.6	114.6	118.3	126.4	128.6	114.6
1930–31	125.0	136.3	128.7	110.7	93.8	94.1	98.1	100.8	105.5	113.7	115.2	108.5	109.8
1931–32	101.1	107.8	81.4	66.1	58.2	58.5	61.4	61.8	64.4	64.0	64.6	62.5	70.5
1932–33	63.9	68.1	55.3	44.0	37.7	38.9	42.2	43.5	46.6	49.9	55.8	57.5	48.0
1933–34	67.8	93.0	76.2	63.3	56.4	60.5							

Bureau of Agricultural Economics. Based upon returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; yearly price obtained by weighting monthly prices by average monthly marketings. For previous data see 1930 or earlier Yearbooks.

TABLE 251.—*Sweetpotatoes: Average l. c. l. price per bushel to jobbers, New York and Chicago, 1924–25 to 1933–34*

Market, and season	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
New York:	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
1924–25		1.98	1.47	1.88	2.47	2.75	2.74	2.63		
1925–26	1.53	1.70	1.68	1.70	2.23	2.61	2.59	2.96	3.42	
1926–27	2.21	1.47	.97	.98	1.24	1.37	1.46	1.61	1.81	2.09
1927–28	1.31	1.13	.93	1.29	1.48	1.66	1.88	2.08	2.04	
1928–29	1.57	1.29	1.05	1.31	1.62	1.88	2.14	2.32		
1929–30	1.60	1.34	1.09	1.28	1.60	1.58	1.46	1.66	2.06	
1930–31	1.77	1.40	1.21	1.26	1.56	1.90	2.15	2.09		
1931–32	1.21	.67	.56	.56	.57	.56	.67	.68	.74	
1932–33	.81	.60	.54	.54	.61	.73	.82	.97	1.01	1.16
1933–34	1.43	.79	.65	.70	.82					
Chicago:										
1924–25		2.29	1.88	2.33	2.80	2.92	3.26	2.94		
1925–26	2.04	2.04	2.02	2.25	2.42	2.37	2.29	2.40	2.98	
1926–27	2.23	1.72	1.30	1.37	1.69	1.70	1.66	1.52	1.23	1.44
1927–28	1.54	1.55	1.39	1.44	[1] 1.68	[1] 2.16	[1] 2.51	[1] 2.09	[1] 2.22	
1928–29	2.01	1.69	1.46	1.92	[1] 2.30	[1] 2.40	[1] 2.49	[1] 2.37		
1929–30	1.76	1.83	1.57	[1] 1.64	1.78	[1] 1.90	2.06	2.22	2.61	
1930–31	2.21	1.81	1.59	1.77	1.74	1.88	2.02	2.26		
1931–32	1.12	1.06	.89	1.03	.97	.88	1.02	.99	.95	
1932–33	.94	1.13	.93	.94	1.08	.98	.99	1.05	.76	.50
1933–34	1.64	1.22	1.14	1.19	1.46					

[1] Kiln-dried.

Bureau of Agricultural Economics; compiled from daily market reports from Bureau representatives in the markets.

Average prices as shown are based on stock of good merchantable quality and condition; they are simple averages of daily range of selling prices. In some cases conversions have been made from larger to smaller units or vice versa, in order to obtain comparability.

TABLE 252.—*Spinach, commercial crop: Acreage, production, and season average price per bushel or per ton received by producers; average 1927–31, annual 1932 and 1933*

Utilization	Acreage			Production			Price for crop of—		
	Average, 1927–31	1932	1933	Average, 1927–31	1932	1933	Average, 1927–31	1932	1933
	Acres	*Acres*	*Acres*	*1,000 bushels* [1]	*1,000 bushels* [1]	*1,000 bushels* [1]	*Dollars*	*Dollars*	*Dollars*
For market	45, 980	48, 910	63, 970	[2] 12, 859	[2] 11, 818	11, 544	0. 50	0. 46	0. 37
				Short tons	*Short tons*	*Short tons*			
For manufacture	12, 430	5, 540	10, 100	60, 100	20, 500	35, 600	15. 64	12. 98	11. 85

[1] Bushels containing approximately 20 pounds.
[2] Includes some quantities not harvested on account of market conditions: 2,257,000 bushels in 1927; 3,195,000 bushels in 1929; 19,000 bushels in 1931, and 31,000 bushels in 1932. Price refers to harvested portion of crop.

Bureau of Agricultural Economics; estimates based upon returns from crop reporters and canning establishments.

TABLE 253.—*Spinach: Car-lot shipments, by State of origin, 1922–33*

State	Crop-movement season [1]											
	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
New York	4	24	23	12	12	14	24	102	41	46	53	42
Maryland	603	798	725	619	846	670	749	628	172	441	102	56
Virginia	2, 212	3, 208	3, 107	2, 946	2, 669	3, 213	3, 066	2, 974	2, 586	1, 332	1, 127	1, 963
South Carolina	161	422	161	501	614	462	282	110	75	82	5	11
Arkansas	2	2	3	24	37	47	191	84	141	127	62	68
Texas	1, 455	2, 433	3, 038	3, 235	4, 513	4, 495	5, 528	5, 559	6, 085	7, 302	6, 669	5, 877
California	302	473	70	241	305	445	334	494	177	71	100	101
Washington	13	23	40	123	121	145	156	154	207	170	145	164
Other States	162	197	340	218	266	164	263	243	152	202	131	222
Total	4, 914	7, 580	7, 507	7, 919	9, 383	9, 655	10, 593	10, 348	9, 636	9, 773	8, 394	8, 504

[1] Crop-movement season covers 15 months, from October of the preceding year through December of the year shown. Figures for Maryland, Washington, and New Jersey, include shipments in January succeeding the regular crop-movement season.
[2] Preliminary.

Bureau of Agricultural Economics. Compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 254.—*Strawberries, commercial crop: Acreage, production, and season average price per crate received by producers, by States; average 1927–31, annual 1932 and 1933*

Group and State	Acreage			Production [1]			Price for crop of—		
	Average, 1927–31	1932	1933	Average, 1927–31	1932	1933	Average, 1927–31	1932	1933
	Acres	*Acres*	*Acres*	*1,000 crates* [2]	*1,000 crates* [2]	*1,000 crates* [2]	*Dollars*	*Dollars*	*Dollars*
Early:									
Alabama	5, 290	4, 300	4, 460	378	280	334	3. 16	1. 50	. 95
Florida	6, 620	8, 100	11, 200	464	616	784	6. 62	4. 80	3. 00
Louisiana	23, 570	29, 500	26, 000	1, 315	[3] 1, 504	[3] 1, 248	5. 21	2. 64	2. 90
Mississippi	1, 060	2, 560	3, 100	66	128	124	3. 57	1. 87	1. 05
Texas	1, 910	2, 100	2, 000	108	126	80	4. 71	3. 85	2. 85
Total	38, 450	46, 560	46, 760	2, 331	[3] 2, 654	[3] 2, 570	5. 05	3. 12	2. 56
Second early:									
Arkansas	16, 980	16, 500	19, 500	778	1, 040	800	2. 76	1. 90	1. 45
California, southern district	1, 610	1, 500	1, 600	342	340	352	4. 37	2. 40	2. 64
Georgia	300	330	400	16	17	24	2. 83	1. 88	1. 00
North Carolina	6, 200	6, 200	6, 500	662	496	650	3. 08	1. 80	1. 77
South Carolina	360	450	550	27	32	44	3. 08	2. 06	1. 72
Tennessee	14, 940	15, 000	20, 000	894	705	1, 000	2. 51	1. 25	1. 05
Virginia	8, 360	6, 350	7, 440	675	413	595	2. 73	1. 64	1. 15
Total	48, 750	46, 330	55, 990	3, 394	3, 043	3, 465	2. 91	1. 76	1. 46
Intermediate:									
California, other	2, 250	2, 670	3, 010	415	566	572	3. 94	2. 32	2. 21
Delaware	3, 930	3, 600	3, 900	323	324	468	2. 53	1. 15	. 85
Illinois	4, 420	5, 120	6, 000	216	333	420	2. 91	1. 50	1. 35
Kansas	920	950	900	52	57	45	3. 07	2. 20	1. 75
Kentucky	6, 230	5, 700	9, 000	356	479	450	3. 38	1. 90	1. 20
Maryland	9, 180	7, 600	8, 060	663	608	[3] 846	2. 57	1. 35	. 95
Missouri	20, 530	15, 920	14, 800	885	685	622	3. 27	2. 00	1. 60
New Jersey	4, 820	6, 000	6, 500	392	678	630	2. 80	1. 44	1. 44
Oklahoma	[4] 1, 490	1, 450	1, 800	[4] 48	51	50	[4] 2. 79	2. 15	1. 90
Total	53, 470	49, 010	53, 970	3, 341	3, 781	[3] 4, 103	3. 02	1. 72	1. 39
Late:									
Indiana	1, 550	1, 890	2, 150	102	159	183	3. 03	1. 60	1. 20
Iowa	2, 660	2, 900	2, 900	170	218	145	3. 93	2. 10	2. 10
Michigan	5, 180	5, 500	5, 550	372	396	361	3. 70	1. 45	1. 40
New York	4, 470	4, 960	4, 810	427	521	457	3. 93	1. 85	1. 90
Ohio	3, 840	4, 000	3, 840	233	280	250	3. 73	1. 90	1. 65
Oregon	9, 650	12, 120	6, 180	666	970	297	2. 97	1. 08	1. 65
Pennsylvania	2, 980	3, 070	3, 100	268	276	239	3. 32	1. 75	1. 50
Utah	1, 450	1, 200	1, 500	99	100	93	2. 76	1. 80	1. 70
Washington	7, 970	8, 980	7, 200	566	736	360	3. 28	1. 10	1. 70
Wisconsin	2, 830	3, 050	3, 000	190	235	195	3. 89	1. 80	1. 90
Total	42, 580	47, 670	40, 230	3, 093	3, 891	2, 580	3. 44	1. 47	1. 67
Grand total	183, 260	189, 570	196, 950	12, 158	[3] 13, 369	[3] 12, 718	3. 48	1. 89	1. 69

[1] Includes undetermined quantities used for canning, cold pack, etc.
[2] 24-quart crates containing approximately 36 pounds.
[3] Including some quantities not harvested on account of market conditions: Louisiana, 412,000 crates in 1932, and 208,000 crates in 1933; Maryland, 96,000 crates in 1933. Price refers to harvested portion of crop.
[4] Short-time average.

Bureau of Agricultural Economics; estimates based upon returns from crop reporters.

TABLE 255.—*Strawberries: Car-lot shipments, by State of origin, 1929–33*

Group and State	Calendar year [1]				
	1929	1930	1931	1932	1933 [2]
Early:	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Alabama	1,354	771	1,154	755	893
Florida	1,633	1,721	1,862	1,760	2,084
Louisiana	2,859	2,389	4,720	2,664	2,610
Mississippi	115	74	127	131	114
Texas	253	92	65	38	41
Other States	1	6	3		
Total	6,215	5,053	7,931	5,348	5,742
Second early:					
Arkansas	2,488	688	578	1,721	1,092
California (southern district)	10	16	13	75	62
Georgia	17	9	14	11	13
North Carolina	1,483	756	1,228	619	849
South Carolina	30	9	44	58	74
Tennessee	2,151	1,158	1,066	1,282	1,632
Virginia	849	335	525	393	475
Total	7,028	2,971	3,468	4,159	4,197
Intermediate:					
California (other)	162	203	174	366	384
Delaware	418	203	111	94	158
Illinois	273	163	119	175	211
Indiana	105	33	64	150	188
Iowa	52	48	36	44	22
Kansas	63	29	23	13	15
Kentucky	851	404	395	1,070	988
Maryland	734	424	352	326	358
Missouri	2,062	807	692	795	765
New Jersey	176	106	60	67	41
Oklahoma	111	39	3	12	14
Total	5,007	2,459	2,029	3,112	3,144
Late:					
Massachusetts	47	44	21	21	11
Michigan	79	57	53	71	102
New York	55	31	58	85	24
Oregon	103	35	40	112	2
Washington	61	12	23	32	2
Wisconsin	26	7	8	59	18
Other States	5		9	7	10
Total	376	186	212	387	169
Grand total	18,626	10,669	13,640	13,006	13,252

[1] Crop movement is for calendar year, except Florida, which begins in December of the preceding year.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.

Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 256.—*Tomatoes: Commercial acreage, season average price received by producers, and production; imports and exports, United States, 1924–33*

Year	Commercial acreage		Season average price received by producers		Commercial production		Imports, year beginning July			Exports, year beginning July	
	For market	For manufacture	For market, per bushel[1]	For manufacture, per ton[2]	For market	For manufacture	Fresh	Canned[3]	Paste	Canned	Catsup and sauces
	Acres	*Acres*	*Dollars*	*Dollars*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1924	150, 520	291, 270	2. 10	15. 71	1, 043, 300	2, 380, 400	69, 216	83, 345	17, 382	5, 203	5, 520
1925	134, 020	355, 130	1. 96	14. 79	1, 095, 800	3, 618, 400	82, 448	84, 897	18, 179	5, 794	5, 006
1926	111, 030	263, 300	2. 14	14. 71	762, 400	1, 997, 200	124, 489	80, 257	15, 642	7, 504	7, 556
1927	138, 900	267, 970	1. 62	14. 31	972, 700	2, 391, 800	113, 357	103, 782	12, 064	6, 725	8, 584
1928	139, 370	270, 850	1. 85	14. 19	866, 000	1, 994, 400	128, 627	114, 042	9, 539	4, 009	13, 066
1929	142, 470	323, 720	1. 83	15. 25	939, 200	3, 069, 400	139, 886	147, 429	16, 547	4, 872	10, 419
1930	154, 420	407, 950	1. 63	15. 05	939, 800	3, 515, 000	113, 480	75, 173	11, 605	2, 916	5, 210
1931	158, 640	296, 120	1. 11	11. 80	936, 700	1, 952, 800	122, 215	91, 572	12, 154	4, 621	3, 221
1932	156, 900	280, 510	1. 05	10. 03	988, 000	2, 398, 600	59, 028	72, 226	11, 405	4, 038	2, 651
1933	150, 500	262, 380	1. 17	11. 34	867, 800	1, 986, 800	--------	--------	--------	--------	--------

1 Bushels containing approximately 56 pounds.
2 Short tons.
3 Includes "otherwise prepared."

Bureau of Agricultural Economics; production figures based on returns from crop reporters and canning establishments; imports and exports compiled from Monthly Summary of Foreign Commerce of the United States, June issues.

TABLE 257.—*Tomatoes, commercial crop: Acreage, production, and season average price per bushel or per ton received by producers; average 1927–31, annual 1932 and 1933*

Utilization, marketing season, and State	Acreage			Production			Price for crop of—		
	Average, 1927–31	1932	1933	Average, 1927–31	1932	1933	Average, 1927–31	1932	1933
For market:	*Acres*	*Acres*	*Acres*	*1,000 bushels*[1]	*1,000 bushels*[1]	*1,000 bushels*[1]	*Dollars*	*Dollars*	*Dollars*
Fall	3, 450	3, 600	6, 100	213	272	250	2. 47	2. 97	2. 17
Early (sec. 1)	11, 740	8, 500	11, 000	1, 339	1, 360	1, 705	2. 86	2. 15	1. 80
Early (sec. 2)	27, 710	19, 760	25, 400	2, 210	1, 299	1, 694	2. 42	2. 56	1. 56
Second early	32, 320	40, 500	34, 000	3, 599	3, 202	2, 666	1. 62	1. 29	1. 52
Intermediate	34, 110	42, 380	36, 200	4, 699	[2] 5, 637	[2] 4, 227	1. 23	. 59	. 82
Late (sec. 1)	26, 510	34, 960	31, 400	3, 757	[2] 4, 893	4, 269	1. 08	. 57	. 75
Late (sec. 2)	10, 920	7, 200	6, 400	806	979	685	1. 74	1. 19	1. 54
Total	146, 760	156, 900	150, 500	16, 623	[2] 17, 642	[2] 15,496	1. 61	1. 05	1. 17
For manufacture:				*Short tons*	*Short tons*	*Short tons*			
New York	12, 690	10, 200	11, 300	79, 800	87, 700	65, 500	14. 90	9. 80	11. 20
New Jersey	33, 800	30, 000	27, 000	175, 900	186, 000	89, 100	18. 50	14. 80	13. 50
Pennsylvania	4, 190	6, 500	6, 200	15, 800	29, 900	27, 900	14. 60	13. 20	11. 60
Ohio	10, 810	9, 300	9, 800	57, 400	60, 400	70, 600	11. 60	7. 60	9. 30
Indiana	59, 140	62, 000	53, 000	230, 300	248, 000	212, 000	12. 50	8. 10	9. 60
Illinois	5, 370	5, 400	4, 800	20, 700	17, 300	13, 400	13. 10	9. 80	10. 90
Michigan	2, 010	1, 900	2, 500	11, 300	11, 000	18, 500	11. 40	7. 00	7. 90
Iowa	5, 250	5, 300	5, 000	23, 100	11, 100	25, 000	13. 10	8. 80	9. 20
Missouri	21, 400	14, 000	12, 000	45, 600	28, 000	42, 000	12. 70	8. 30	9. 00
Delaware	13, 560	10, 600	10, 600	49, 800	45, 600	21, 200	15. 40	9. 70	16. 30
Maryland	40, 580	36, 000	38, 000	143, 500	154, 800	98, 800	15. 10	9. 70	15. 30
Virginia	16, 040	13, 900	14, 000	47, 600	38, 900	30, 800	13. 50	9. 20	12. 10
Kentucky	6, 510	4, 500	4, 200	18, 800	8, 100	8, 800	12. 30	7. 00	9. 30
Tennessee	10, 510	8, 400	6, 600	24, 600	14, 300	21, 100	12. 40	8. 00	11. 60
Arkansas	20, 960	18, 000	14, 000	49, 500	45, 000	37, 800	12. 60	8. 80	10. 00
Colorado	2, 070	2, 300	1, 400	16, 000	10, 800	9, 500	11. 10	8. 10	8. 70
Utah	6, 290	3, 000	3, 600	55, 600	24, 600	31, 700	10. 90	7. 90	9. 20
California	35, 100	29, 950	30, 000	203, 800	149, 800	135, 000	14. 50	10. 30	13. 00
Other States[3]	7, 040	9, 260	8, 380	23, 300	28, 000	34, 700	13. 02	9. 93	10. 03
Total	313, 320	280, 510	262, 380	1, 292, 400	1, 199, 300	993, 400	14. 12	10. 03	11. 34

1 Bushels containing approximately 56 pounds.
2 Includes some quantities not harvested on account of market conditions: 75,000 bushels in 1930; 168,000 bushels in 1931; 126,000 bushels in 1932, and 134,000 bushels in 1933. Price refers to harvested portion of crop.
3 Other States includes Connecticut, Florida, Georgia, Idaho, Kansas, Louisiana, Mississippi, Nebraska, New Mexico, Oklahoma, Oregon, South Carolina, Texas, Washington, West Virginia, and Wisconsin.

Bureau of Agricultural Economics; estimates based upon returns from crop reporters and canning establishments.

TABLE 258.—*Tomatoes: Car-lot shipments, by State of origin, 1923–33*

State	Calendar year [1]										
	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
New York	1,261	954	1,024	656	951	1,112	838	514	774	463	418
New Jersey	1,648	2,150	1,907	2,006	1,329	678	694	842	52	17	11
Ohio	956	1,035	1,286	1,065	1,125	926	1,020	1,007	1,360	960	679
Indiana	1,185	1,479	1,889	1,514	1,132	799	1,631	2,217	683	279	147
Illinois	250	230	539	422	270	240	237	316	339	139	53
Maryland	271	66	313	259	586	613	775	554	373	313	267
Virginia	44	167	379	454	360	277	488	243	166	147	61
North Carolina	------	8	------	12	21	3	2	118	158	162	83
South Carolina	431	421	568	449	187	161	348	461	348	235	162
Florida	9,760	9,140	7,188	4,351	9,737	8,491	8,038	6,495	5,435	6,284	6,201
Arkansas	9	38	104	281	240	389	300	318	217	228	62
Tennessee	501	985	1,393	2,374	2,016	2,759	2,317	2,496	2,038	2,026	1,429
Mississippi	2,144	3,776	3,149	3,492	4,849	3,230	4,099	3,451	2,683	2,869	2,408
Texas	1,084	1,694	2,398	2,890	3,393	4,435	5,338	7,546	8,774	4,108	6,328
Colorado	128	77	195	27	20	59	55	138	195	67	30
Utah	369	380	1,457	272	883	899	740	342	323	198	282
Washington	21	33	86	35	95	143	215	336	252	78	100
California	3,293	2,789	2,961	4,440	4,620	4,475	4,241	5,458	3,403	4,307	3,699
Other States	612	1,408	1,418	1,069	850	706	826	726	273	327	442
Total	23,967	26,830	28,254	26,068	32,664	30,395	32,202	33,578	27,846	23,207	22,862

[1] Figures for Florida, Texas, and California include shipments for months preceding or following the regular crop-movement season.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 259.—*Tomatoes, canned: Pack [1] in the United States, 1923–31 and 1933 [2]*

State	Season									
	1923	1924	1925	1926	1927	1928	1929	1930	1931	1933
	1,000 cases	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*
New York	266	325	389	302	300	261	329	467	497	485
New Jersey	412	186	418	204	254	95	257	356	144	111
Pennsylvania	258	150	338	118	167	95	122	151	160	183
Ohio	174	133	179	120	189	124	153	429	304	427
Indiana	717	1,050	1,955	900	1,131	613	1,134	2,029	1,192	1,685
Missouri	839	871	1,836	895	605	396	622	1,078	519	(3)
Delaware	1,216	803	1,272	228	827	325	851	755	340	266
Maryland	5,722	3,825	6,175	1,901	3,671	1,720	4,050	3,770	1,710	2,636
Virginia [4]	963	1,116	1,138	572	1,059	466	918	818	508	977
Kentucky	59	136	275	223	253	111	167	161	161	488
Tennessee	176	386	382	280	368	160	297	518	314	
Arkansas [5]	270	768	1,168	558	678	613	769	1,050	761	[6] 1,546
Colorado [7]	182	180	309	183	127	158	195	293	227	128
Utah	584	417	1,353	235	792	924	768	788	1,028	556
California	2,397	1,767	1,839	2,347	2,257	1,991	2,812	3,460	864	1,573
Other States	437	406	744	389	459	487	701	875	844	925
United States	14,672	12,519	19,770	9,455	13,137	8,539	14,145	16,998	9,573	11,986

[1] Stated in cases of 24 No. 3 cans.
[2] No comparable figures for 1932.
[3] See footnote 6.
[4] Includes West Virginia.
[5] Previous to 1923, included in "Other States."
[6] Includes Kansas, Missouri and Oklahoma.
[7] Includes Washington.

Bureau of Agricultural Economics; compiled from National Canners' Association, 1923–26; Bureau of Census, 1927–29; beginning 1930, Foodstuffs Division, Bureau of Foreign and Domestic Commerce.

TABLE 260.—*Walnuts: Production and average price per ton received by producers, California, 1924–33*

Item	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933 [1]
Production ....short tons..	22,500	36,000	15,000	51,000	25,000	39,000	30,000	29,000	45,500	32,000
Price ....dollars..	460	440	480	330	420	320	410	233	194	202
Farm value, basis average price ....1,000 dollars..	10,350	15,840	7,200	16,830	10,500	12,480	12,300	6,757	8,827	6,464

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 261.—*Watermelons, commercial crop: Acreage, production, and season average price per 1,000 melons received by producers; average 1927–31, annual 1932 and 1933*

Marketing season	Acreage			Production			Price for crop of—		
	Average, 1927–31	1932	1933	Average, 1927–31	1932	1933	Average, 1927–31	1932	1933
	Acres	*Acres*	*Acres*	*1,000 melons*	*1,000 melons*	*1,000 melons*	*Dollars*	*Dollars*	*Dollars*
Early	42,250	38,000	30,000	[1] 15,775	[1] 11,552	8,835	212	124	163
Second early	133,960	141,560	107,150	[1] 40,232	[1] 29,027	[1] 24,057	127	65	77
Late	39,630	53,670	48,800	13,908	[1] 20,044	[1] 17,091	146	75	85
Total	215,840	233,230	185,950	[1] 69,915	[1] 60,623	[1] 49,983	150	80	95

[1] Includes some quantities not harvested on account of market conditions, 5,677,000 melons in 1930; 3,125,000 melons in 1931; 8,663,000 melons in 1932, and 1,354,000 melons in 1933. Price refers to harvested portion of crop.

Bureau of Agricultural Economics; estimates based upon returns from crop reporters.

TABLE 262.—*Watermelons: Car-lot shipments, United States, 1924–33*

Season	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Total
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
1924	[1] 2	65	6,602	26,024	10,470	2,458	120	4	45,745
1925		605	11,767	17,814	11,524	2,390	82	2	44,184
1926		443	11,424	29,923	11,509	1,861	28		55,188
1927	4	1,713	15,255	20,898	6,262	1,261	67		45,460
1928		508	10,410	24,937	11,408	1,183	50	1	48,497
1929	36	3,498	22,047	18,287	7,582	1,007	57		52,514
1930		386	17,830	29,028	10,306	1,359	102		59,011
1931		121	16,282	23,733	10,344	1,593	58		52,131
1932	2	696	11,534	13,966	5,274	655	21		32,148
1933 [2]	3	1,637	7,949	13,358	5,333	931	21		29,232

[1] Reported as shipped in January. [2] Preliminary.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 263.—*Watermelons: Car-lot shipments, by State of origin, 1924–33* [1]

State	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Indiana	378	646	389	45	322	299	102	305	32	16
Iowa	50	289	135	107	123	83	100	109	60	82
Missouri	1,432	3,293	2,843	533	851	1,039	1,405	2,641	1,770	2,372
Maryland	427	531	402	161	208	210	311	620	462	370
Virginia	99	375	375	294	488	487	510	935	961	1,047
North Carolina	664	991	1,301	1,144	1,252	758	1,769	2,486	1,628	1,698
South Carolina	4,972	4,232	5,395	4,031	3,822	3,494	5,018	4,206	3,617	4,085
Georgia	16,347	14,754	19,379	16,762	17,558	21,882	25,998	18,545	9,001	9,291
Florida	[3] 6,355	7,190	8,384	8,485	9,195	10,479	8,682	9,561	5,364	4,241
Alabama	2,278	1,880	1,943	1,379	769	722	1,056	978	874	326
Mississippi	198	219	208	182	197	251	206	139	35	34
Arkansas	352	411	471	321	347	439	270	312	173	135
Oklahoma	205	141	249	429	513	538	511	244	73	42
Texas	6,513	3,157	6,314	5,619	6,450	4,460	6,050	4,107	3,159	2,271
Washington	215	259	191	200	261	307	239	192	140	66
California	4,305	4,522	6,278	5,221	5,589	6,366	6,282	6,241	4,343	2,824
Other States	955	1,294	931	547	552	700	502	510	456	332
Total	45,745	44,184	55,188	45,460	48,497	52,514	59,011	52,131	32,148	29,232

[1] Crop-movement season extends from Apr. 1 through November of a given year.
[2] Preliminary.
[3] Includes 2 cars reported as shipped in January.

Bureau of Agricultural Economics; compiled from daily and monthly reports received by the Bureau from officials and local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included.

TABLE 264.—*Watermelons, Tom Watson: Price per car to jobbers, Chicago and New York, 1924–33* [1]

Market and season	June	July	August	Market and season	June	July	August
	Dollars	*Dollars*	*Dollars*		*Dollars*	*Dollars*	*Dollars*
Chicago:				New York:			
1924	576	249	291	1924	474	[3] 270	[3] 273
1925	576	362	[2] 211	1925	[3] 512	[3] 311	202
1926	623	281	[2] 202	1926	460	248	180
1927	471	289		1927	435	289	237
1928	445	301	252	1928	378	262	216
1929	365	339		1929	368	278	[2] 234
1930	511	271	269	1930	469	214	211
1931	426	273		1931	[4] 427		
1932	363	259		1932	236	216	184
1933	443	236		1933	405	212	[2] 166

[1] Quotations are for southeastern, 22- to 26-pound average.
[2] Thurmond Gray.
[3] Auction sales.
[4] Less than 10 quotations.

Bureau of Agricultural Economics; compiled from daily market reports from Bureau representatives in the markets.

Average prices as shown are based on stock of good merchantable quality and condition; they are simple averages of daily range of selling prices.

TABLE 265.—*Frozen and preserved fruits: Cold-storage holdings, United States, 1924–25 to 1933–34*

Year	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1
	1,000 lb.	*1,000 lbs.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
1924–25	9, 695	20, 525	33, 918	37, 472	38, 001	36, 501	34, 688	34, 610	33, 827	21, 758	19, 810	17, 016
1925–26	19, 168	24, 259	28, 702	28, 356	25, 564	24, 640	22, 624	24, 054	21, 592	19, 124	16, 368	13, 370
1926–27	23, 347	39, 421	50, 941	59, 825	57, 990	56, 088	54, 189	50, 773	48, 921	45, 716	43, 455	39, 147
1927–28	41, 075	57, 670	62, 974	65, 352	62, 412	61, 840	56, 971	54, 661	52, 196	43, 945	40, 137	36, 659
1928–29	38, 372	60, 916	83, 228	79, 211	79, 457	77, 274	73, 195	68, 725	60, 216	53, 310	48, 570	41, 392
1929–30	42, 285	56, 539	64, 863	64, 993	61, 348	61, 752	57, 860	54, 942	48, 085	41, 723	38, 554	32, 535
1930–31	35, 854	44, 795	73, 360	81, 734	81, 178	80, 049	76, 737	74, 845	70, 646	66, 636	60, 822	56, 740
1931–32	66, 358	88, 979	110, 223	107, 271	103, 427	99, 234	96, 074	92, 305	88, 819	82, 283	78, 162	72, 194
1932–33	69, 068	90, 323	92, 717	91, 908	87, 302	83, 579	79, 651	74, 595	70, 184	63, 613	58, 983	51, 861
1933–34	51, 922	60, 029	69, 275	67, 631	64, 877	65, 088	61, 713					

Bureau of Agricultural Economics. Compiled from reports made by cold-storage establishments.

TABLE 266.—*Fruits and vegetables: Unloads of 18 commodities at 66 markets, in car lots, 1933, and total 1920–1933*

Market	Apples	Cabbage	Cantaloups [1]	Celery	Grapefruit	Grapes	Lemons	Lettuce [2]	Onions	Oranges [3]	Peaches	Pears	Plums [4]	Potatoes	Strawberries	Sweetpotatoes	Tomatoes	Watermelons
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Akron	56	44	23	7	9	61	8	46	13	73	53	0	0	375	39	38	5	179
Albany	15	100	187	99	102	159	77	310	212	482	161	19	9	674	120	101	182	166
Atlanta	349	54	27	137	70	76	175	246	210	316	5	24	0	870	0	39	82	356
Baltimore	244	843	245	726	488	356	492	765	631	1, 699	69	178	55	2, 545	126	252	766	1, 455
Birmingham	314	150	4	64	37	50	101	187	181	287	9	13	3	526	5	0	99	100
Boston	927	1, 107	1, 555	821	1, 296	2, 146	640	1, 772	1, 803	5, 936	722	401	195	7, 646	975	722	1, 858	860
Bridgeport	31	61	54	31	49	140	34	103	51	240	57	17	15	579	45	7	61	67
Buffalo	126	197	315	251	293	235	166	600	138	1, 090	202	45	14	858	324	319	116	407
Chicago	4, 007	1, 695	1, 716	971	1, 838	2, 292	991	4, 067	1, 805	5, 928	1, 651	852	408	14, 269	1, 271	1, 104	2, 192	2, 452
Cincinnati	1, 408	726	360	260	506	322	408	679	501	1, 546	650	124	74	3, 548	626	602	478	546
Cleveland	722	475	612	343	575	428	350	1, 120	637	2, 097	627	174	87	2, 899	467	673	142	718
Columbus	188	211	82	145	164	89	89	342	138	529	205	27	10	1, 427	134	239	82	221
Dallas	455	90	9	148	104	118	158	439	189	462	16	7	13	1, 029	48	13	252	20
Dayton	231	104	23	21	13	5	3	79	42	118	65	2	0	765	78	38	4	121
Denver	490	68	118	38	210	210	138	483	43	535	184	62	53	750	145	119	229	196
Des Moines	158	89	35	99	99	54	60	216	80	290	92	15	13	867	51	36	39	70
Detroit	1, 393	548	493	450	779	551	458	1, 352	612	2, 409	1, 017	178	136	2, 988	736	652	848	769
Duluth	296	11	21	35	32	58	19	75	43	182	45	19	10	70	58	19	55	58
El Paso	112	15	2	35	19	42	25	63	7	104	20	4	9	289	16	0	27	13
Evansville	62	103	1	29	39	22	30	72	69	161	3	1	4	623	13	6	63	30
Fort Worth	280	20	5	70	65	60	79	143	158	169	9	5	7	696	56	15	140	3
Grand Rapids	33	56	47	36	138	44	67	272	31	353	72	1	0	325	80	68	14	96
Hartford	53	136	145	90	145	223	56	267	67	612	68	34	34	522	70	79	140	123
Houston	455	126	3	127	93	123	154	308	282	371	93	22	29	1, 012	0	23	184	12
Indianapolis	531	296	57	102	246	94	124	384	178	709	152	13	14	1, 957	137	96	116	253
Jacksonville	226	82	14	69	59	46	84	176	206	27	23	7	1	511	0	0	35	78
Kansas City	537	446	200	316	366	212	186	628	428	799	239	92	48	3, 157	150	46	317	364
Lexington	183	86	11	27	11	14	16	67	43	75	19	4	0	429	12	61	48	59
Los Angeles	3, 054	46	63	42	28	16	1	106	633	16	166	344	22	6, 348	2	149	460	1, 146
Louisville	378	223	57	86	161	60	80	230	172	497	59	21	4	975	64	34	148	170
Memphis	361	347	30	103	123	128	132	257	220	521	27	22	1	903	16	0	98	81
Milwaukee	1, 208	141	187	255	233	532	133	437	137	861	411	188	111	1, 952	332	80	164	342
Minneapolis	802	116	135	326	295	289	173	561	90	747	226	141	77	1, 106	268	150	236	256
Nashville	284	102	5	50	87	44	68	154	75	420	11	9	1	860	2	1	82	142
Newark	469	428	257	306	45	1, 184	10	794	256	219	294	18	14	3, 909	221	57	317	260
New Haven	49	94	53	58	37	401	4	198	97	276	81	33	11	618	24	62	100	74
New Orleans	328	152	107	163	207	130	334	366	435	858	111	62	24	896	0	2	329	447
New York	6, 511	3, 938	5, 931	3, 631	6, 334	7, 851	2, 786	7, 502	5, 514	19, 661	3, 037	3, 292	1, 394	19, 045	1, 469	554	6, 360	2, 639
Norfolk	83	88	8	75	54	35	37	114	138	188	0	14	0	809	0	0	51	27
Oklahoma City	396	77	0	114	70	68	71	252	48	258	21	10	8	832	23	0	60	29

[1] Includes Casabas, Honey Dews, and Honey Balls.
[2] Includes romaine.
[3] Includes tangerines.
[4] Includes fresh prunes.
[5] Totals include: 1920–23, 12 markets; 1924–26, 36 markets; 1927–33, 66 markets.

TABLE 266.—*Fruits and vegetables: Unloads of 18 commodities at 66 markets, in car lots, 1933, and total 1920–1933*—Continued

Market	Apples	Cabbage	Cantaloups [1]	Celery	Grapefruit	Grapes	Lemons	Lettuce [2]	Onions	Oranges [3]	Peaches	Pears	Plums [4]	Potatoes	Strawberries	Sweetpotatoes	Tomatoes	Watermelons
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Omaha	233	127	74	110	145	135	92	287	117	413	146	50	42	942	107	38	106	146
Peoria	174	84	15	14	61	92	43	124	49	333	29	9	9	955	28	30	16	57
Philadelphia	2,086	2,269	1,303	1,427	1,660	1,972	860	2,793	2,048	6,316	624	642	258	7,182	317	87	2,222	1,373
Pittsburgh	1,552	749	1,100	705	535	1,296	409	1,189	1,043	2,148	593	259	67	3,685	399	915	1,230	763
Portland, Me	42	26	53	35	43	44	15	74	202	308	41	16	4	247	96	80	70	78
Portland, Oreg	162	104	173	106	167	223	124	374	106	843	126	176	1	864	101	140	117	191
Providence	56	232	139	129	127	262	52	277	252	653	144	37	23	1,099	181	97	253	192
Richmond	145	131	9	111	82	52	76	148	134	361	1	21	0	547	1	12	119	26
Rochester	11	70	111	94	178	158	96	269	83	685	76	14	4	294	114	128	106	216
St. Louis	1,151	1,289	455	581	541	391	450	1,305	913	1,589	320	112	80	5,680	253	82	604	1,204
St. Paul	349	46	43	141	126	150	64	228	16	421	90	86	49	338	118	44	87	90
Salt Lake City	26	7	46	2	24	39	14	124	18	258	11	1	0	70	46	48	48	91
San Antonio	311	7	3	102	25	99	115	249	121	280	56	20	15	765	5	22	85	0
San Francisco	469	3	177	289	288	1,566	173	164	697	653	447	114	13	3,486	10	63	175	222
Seattle	353	114	154	167	214	236	155	385	268	1,095	83	104	14	1,317	133	155	156	147
Shreveport	115	22	2	23	23	22	34	89	54	108	3	0	0	234	5	0	20	1
Sioux City	232	84	27	63	59	50	41	124	40	187	105	53	27	290	69	25	47	44
Spokane	57	9	33	22	23	23	4	68	44	37	24	0	0	88	26	47	24	56
Springfield, Mass	38	90	90	131	53	222	18	148	56	406	62	14	9	486	81	55	194	125
Syracuse	15	47	118	60	96	179	81	198	54	511	87	8	2	369	96	98	97	175
Tampa	177	38	14	58	2	59	32	161	101	0	11	19	3	564	0	1	81	27
Terre Haute	39	30	0	0	8	0	5	4	10	49	6	0	0	396	2	3	1	30
Toledo	116	66	36	45	83	58	50	196	26	361	115	6	5	768	85	120	1	111
Washington	227	309	228	310	230	137	34	575	362	887	91	80	26	1,562	27	74	301	419
Worcester	0	3	6	3	0	15	0	1	40	35	8	0	0	820	29	13	14	31
Youngstown	55	48	35	37	65	134	35	115	68	274	47	5	7	496	53	104	21	179
Total: [5]																		
1920	32,283	10,138	11,186	4,809	-------	-------	-------	-------	10,645	-------	7,731	-------	-------	53,764	2,657	-------	5,732	-------
1921	32,764	11,238	12,961	6,611	-------	-------	-------	-------	10,704	-------	9,972	-------	-------	58,841	3,800	-------	7,482	-------
1922	33,448	12,409	14,683	7,075	-------	-------	-------	-------	11,953	-------	11,297	-------	-------	65,608	6,781	-------	10,082	-------
1923	43,130	12,808	12,002	8,466	7,023	-------	6,527	-------	16,093	24,187	8,732	-------	-------	65,440	7,291	-------	9,206	-------
1924	52,013	21,209	22,193	13,082	13,693	48,995	8,439	22,425	21,480	46,271	19,557	-------	-------	112,857	11,098	8,495	14,918	22,997
1925	52,414	20,277	24,947	15,167	13,856	55,458	7,474	25,536	19,936	36,847	19,055	-------	-------	111,063	7,720	10,721	15,477	22,735
1926	55,322	20,875	24,785	14,225	11,386	53,823	9,184	31,838	21,005	43,313	25,249	-------	-------	108,629	8,465	12,077	15,000	27,393
1927	50,912	23,955	29,359	19,441	18,233	62,902	12,164	38,958	30,364	55,134	22,288	13,674	4,091	138,501	12,706	16,752	28,248	27,106
1928	57,153	26,451	31,389	20,662	15,868	57,656	13,199	40,588	33,319	49,760	28,000	16,372	4,829	137,451	13,200	14,604	27,244	28,775
1929	51,415	29,466	33,311	20,607	21,739	49,895	13,349	43,069	30,980	72,218	19,264	13,281	4,171	142,707	13,047	14,960	28,642	31,242
1930	52,486	27,497	31,031	21,223	20,977	54,616	14,126	44,603	30,412	53,034	18,062	18,377	5,390	147,758	7,859	13,803	30,850	34,492
1931	50,640	28,032	31,217	18,750	26,891	37,512	13,570	40,492	26,560	73,838	26,577	13,728	4,153	140,289	10,463	12,147	25,828	32,481
1932	44,593	21,214	23,677	17,295	19,229	38,317	11,957	38,067	24,046	68,034	11,097	11,561	4,579	116,708	10,015	10,213	25,103	21,951
1933	35,996	19,695	17,641	15,521	20,377	26,582	12,089	35,901	23,535	71,332	14,318	8,340	3,566	124,003	10,585	8,937	23,174	21,399

See footnotes p. 551.

Bureau of Agricultural Economics; compiled from daily reports made by common carriers to Bureau representatives in the various markets. Unloads as shown in car lots include boat receipts reduced to car-lot equivalents but exclude truck and l.c.l. express and freight receipts. This table not comparable with table published in former Yearbooks.

STATISTICS OF MISCELLANEOUS CROPS

TABLE 267.—*Beans, dry, edible:*[1] *Acreage, production, value, foreign trade, etc., United States, 1919–33*

Year	Acreage harvested	Average yield per acre	Production	Weighted average price per 100 pounds received by producers [2]	Farm value, basis weighted average price [3]	Wholesale price per 100 pounds at Chicago [4]	Foreign trade, year beginning July	
							Imports [5]	Domestic exports [5] [6]
	1,000 acres	*Pounds*	*1,000 bags* [7]	*Dollars*	*1,000 dollars*	*Dollars*	*1,000 bushels*	*1,000 bushels*
1919	*1,162*	*727.0*	*8,447*	----------	----------	----------	----------	----------
1919	1,077	752.0	8,099	6.81	47,954	7.92	3,806	1,993
1920	913	661.8	6,042	4.31	24,710	6.76	824	1,216
1921	861	706.7	6,085	4.76	27,707	4.61	520	1,100
1922	1,129	699.8	7,901	5.82	42,984	7.46	2,623	672
1923	1,322	725.2	9,587	5.37	48,734	7.04	886	695
1924	1,582	587.7	9,298	5.61	48,792	5.46	1,421	549
1925	1,614	728.6	11,760	5.00	53,774	6.16	1,271	576
1926	1,611	646.2	10,410	5.04	46,242	4.95	1,051	529
1927	1,450	629.0	9,120	5.52	47,315	5.53	2,465	427
1928	1,535	642.7	9,866	7.27	68,622	9.00	1,505	316
1929	[8] *1,746*	*699.4*	*12,212*	----------	----------	----------	----------	----------
1929	1,836	666.7	12,240	6.77	79,118	9.76	2,534	296
1930	2,110	658.8	13,900	4.19	55,420	6.63	1,346	271
1931	1,913	671.4	12,843	2.14	25,825	4.55	222	158
1932	1,408	741.5	10,440	2.01	20,025	2.46	157	140
1933 [9]	1,671	734.9	12,280	2.79	32,397	----------	----------	----------

[1] Table includes, besides the ordinary edible beans and limas, the Blackeye of California which is identical with the blackeyed pea of the South. Soybeans not included.
[2] Price of cleaned beans.
[3] Farm value of dry, edible beans equals the price of cleaned beans applied to the production of cleaned beans rather than total production.
[4] Prices 1899 and 1909 from Chicago Board of Trade annual reports, quotations for navy, good to choice; 1914–33 from Daily Trade Bulletin, pea beans.
[5] Imports and exports compiled from Commerce and Navigation of the United States, 1910–17; Foreign Commerce and Navigation of the United States, 1918; Monthly Summary of Foreign Commerce of the United States, June issues, 1919–26; January and June issues, 1927–33; and official records of the Bureau of Foreign and Domestic Commerce.
[6] Not separately reported prior to 1918.
[7] Bags of 100 pounds. Computed from bushels of 60 pounds.
[8] Acreage grown alone.
[9] Preliminary.

Bureau of Agricultural Economics.
Italic figures are census returns; census figures include all States; other figures, estimates of Crop Reporting Board, principal producing States only, revised, 1919–28. See introductory text.
Estimates of acreage, yield, production, price to producers, and farm value previous to 1919, as published in Yearbook for 1933 and earlier years, are not comparable with the revised series in this table.

TABLE 268.—*Beans, dry, edible:*[1] *Acreage, yield, production, and weighted average price per bag of 100 pounds received by producers, by States, averages, and annual 1932 and 1933*

State	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1926–30	1932	1933 [2]	Average, 1921–30	1932	1933 [2]	Average, 1926–30	1932	1933 [2]	1932	1933 [3]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Pounds*	*Pounds*	*Pounds*	*1,000 bags* [4]	*1,000 bags* [4]	*1,000 bags* [4]	*Dollars*	*Dollars*
Maine	7	8	9	[5] 849	780	810	63	62	73	3.75	5.40
Vermont	3	3	3	[5] 647	570	540	22	17	16	3.35	5.00
New York	96	114	117	761	750	720	676	855	842	1.85	3.20
Michigan	523	495	510	637	900	690	2,866	4,455	3,519	1.50	2.25
Wisconsin	8	6	5	494	390	390	33	23	20	2.35	3.00
Minnesota	6	7	7	582	360	420	30	25	29	2.60	3.55
Nebraska	7	14	16	547	720	720	42	101	115	2.30	3.00
Kansas	[5] 14	7	13	--------	360	360	[5] 58	25	47	2.05	2.95
Montana	35	24	35	[5] 867	1,080	960	346	259	336	1.70	2.25
Idaho	117	93	121	1,047	1,140	1,380	1,299	1,060	1,670	1.50	2.15
Wyoming	25	19	29	795	990	1,080	240	188	313	1.80	2.40
Colorado	383	221	345	365	198	330	1,375	438	1,138	2.20	2.85
New Mexico	160	163	176	379	250	340	661	408	598	2.25	2.95
Arizona	7	8	9	434	450	420	33	36	38	3.30	3.80
Oregon	[5] 4	1	1	--------	450	600	[5] 12	4	6	3.00	3.75
California	322	225	275	978	1,104	1,280	3,381	2,484	3,520	3.10	3.50
United States	1,708	1,408	1,671	669.1	741.5	734.9	11,107	10,440	12,280	2.01	2.79

[1] Table includes, besides the ordinary edible beans and limas, the Blackeye of California which is identical with the blackeyed pea of the South. Soybeans not included.
[2] Preliminary.
[3] Average price for 4 months.
[4] Bags of 100 pounds.
[5] Short-time average.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 269.—*Beans, dry, edible:*[1] *Production by classes, 100-pound bags, United States, 1924–33*

Class [2]	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933 [3]
	1,000 bags	*1,000 bags*	*1,000 bags*	*1,000 bags*	*1,000 bags*	*1,000 bags*	*1,000 bags*	*1,000 bags*	*1,000 bags*	*1,000 bags*
Pea	4,121	4,967	3,646	2,325	2,723	3,339	2,834	3,872	4,827	3,818
Great Northern	540	739	856	1,174	1,253	1,764	2,114	2,030	1,072	1,660
Small White [4]	77	200	180	280	424	415	489	429	226	417
Large White [4]	40	25	15	15	23	21	24	15	4	3
Large and Medium White	87	117	27	--------	--------	--------	--------	--------	--------	--------
Marrow	176	222	89	86	112	135	166	212	92	90
White Kidney	78	57	89	52	31	42	39	117	53	56
Red Kidney [5]	881	886	672	428	575	417	345	633	362	433
Small Red	73	163	113	220	282	393	520	488	258	329
Cranberry [4]	70	60	73	110	106	107	120	147	71	97
Pink	284	643	600	559	578	620	627	433	515	597
Yelloweye	172	118	128	114	104	104	81	144	76	90
Pinto	1,329	1,568	1,354	1,772	1,542	2,327	3,174	1,567	893	1,818
Bayo [4]	20	15	21	25	12	12	16	20	3	8
Blackeye [4]	277	450	450	300	428	514	852	459	275	587
Lima [4]	480	800	1,250	1,010	890	987	1,102	1,064	872	943
Baby lima [4]	225	300	580	310	401	486	696	663	322	630
Other [6]	368	430	267	340	382	557	701	550	519	704
Total	9,298	11,760	10,410	9,120	9,866	12,240	13,900	12,843	10,440	12,280

[1] Table includes, besides the ordinary edible beans and limas, the Blackeye of California, which is identical with the blackeyed pea of the South. Soybeans not included.
[2] The bean classification figures in table 263 of 1932 Yearbook, and similar data in preceding issues, were on a different basis from those in table 258 of 1933 Yearbook and those in the present table. The present grouping has been made upon a classification basis consistent with the United States standards for beans.
[3] Preliminary.
[4] Special California classes.
[5] Including production of dark red beans in Michigan: 69,000 bags in 1930, 76,000 bags in 1931, 91,000 bags in 1932, and 70,000 bags in 1933.
[6] Including, in some Western States, seed beans of garden varieties.

Bureau of Agricultural Economics; based upon reports by growers on proportion of total production made up of each variety, supplemented by investigations of field statisticians.
Revised, 1919–28. See introductory text.

TABLE 270.—*Beans, dry, edible:*[1] *Production in specified countries, bags of 100 pounds, average 1921–22 to 1925–26, annual 1930–31 to 1933–34*

Country	Average 1921–22 to 1925–26	1930–31	1931–32	1932–33	1933–34 [2]
	1,000 bags	*1,000 bags*	*1,000 bags*	*1,000 bags*	*1,000 bags*
Canada	736	863	782	685	534
United States	8,926	13,900	12,843	10,440	12,280
Mexico	2,562	1,820	2,997	2,907	
England and Wales	3,787	3,118	2,690	2,647	2,635
Scotland	75	76	59	57	61
Netherlands	327	429	397	[3] 342	
France	2,410	3,119	3,284	3,047	1,926
Italy	2,345	3,490	2,692	3,970	3,395
Spain	3,398	3,631	3,427	3,333	
Germany		255	240	239	237
Czechoslovakia	273	214	198	204	
Austria	162	276	247	208	
Hungary	810	1,017	1,335	[3] 1,909	[3] 1,556
Yugoslavia	[4] 1,748	3,352	2,205	[3] 3,307	[3] 2,690
Rumania	4,681	4,476	7,284	7,142	[3] 6,283
Bulgaria	1,055	1,364	1,787	[3] 1,997	[3] 1,764
Greece	[4] 175	169	258	311	
Japan [5]	1,513	2,919	1,519	1,078	2,578
Chosen	[6] 116	103	70	79	
Brazil	[6] 12,519	14,868			
Chile	969	1,408	1,408	1,763	
Madagascar	[4] 392	233	337	351	
Total countries reporting, all periods	28,086	37,694	36,480	36,279	35,702
Total, all countries		61,000			

[1] Excluding soy, mung, adzuki, broad, and horse beans and similar classes not commonly used as edible beans in the United States.
[2] Preliminary.
[3] Unofficial estimate.
[4] 4-year average.
[5] Production in Hokkaido Province, where most of the dry edible bean varieties are grown.
[6] 3-year average.

Bureau of Agricultural Economics; official sources and International Institute of Agriculture except as otherwise stated.
Figures are for the harvesting seasons 1921 to 1933 in the Northern Hemisphere and 1921–22 to 1933–34 in the Southern Hemisphere.

TABLE 271.—*Beans, dry, edible: Car-lot shipments, by State of origin, 1923–24 to 1932–33*

State	Crop-movement season [1]									
	1923–24	1924–25	1925–26	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33 [2]
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*1,000 bags*
New York	1,969	1,900	1,158	916	614	889	1,056	961	1,922	689
Michigan	8,333	7,848	10,506	8,699	4,989	6,383	5,616	5,046	6,635	4,185
Montana	104	124	288	280	386	566	733	647	402	112
Idaho	749	1,336	1,898	1,437	2,074	1,973	2,516	2,671	2,412	1,024
Wyoming	9	31	82	130	252	347	577	785	499	133
Colorado	1,732	1,316	2,927	1,866	1,711	1,732	2,347	4,312	1,883	490
New Mexico	146	388	170	412	608	555	1,750	624	901	341
California	2,951	1,847	2,558	3,433	3,251	2,961	3,588	2,850	2,253	[3] 678
Other States	100	134	138	114	55	122	239	357	218	62
Total	16,093	14,924	19,725	17,287	13,940	15,528	18,422	18,253	17,125	7,714

[1] Crop-movement season extends from September of one year through August of the following year.
[2] Preliminary.
[3] In addition to rail shipments, 190,267 bags were shipped by river boats or barges.

Bureau of Agricultural Economics; compiled from monthly reports received by the Bureau from local agents of common carriers throughout the country.
Shipments as shown in car lots include those by boat reduced to car-lot basis. Shipments by truck not included. Beginning 1932–33, shipments are reported in bags of 100 pounds each and the data include all shipments originating at shipping points whether in car lots or less than car lots. The figures therefore are not comparable with those in other years, which are for car-lot shipments only.

TABLE 272.—*Beans, dry, edible: Average price per 100 pounds, 1923–24 to 1933–34*

Year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Average
	GREAT NORTHERN, CHICAGO [1]												
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1926–27	------	------	------	------	------	------	5.91	5.85	5.85	------	8.71	9.38	------
1927–28	9.32	------	6.30	6.13	6.46	7.14	8.44	8.40	9.57	9.62	9.20	9.00	[2] 8.14
1928–29	8.38	8.00	8.44	8.86	9.47	9.96	9.95	9.50	9.50	9.54	9.90	9.90	9.28
1929–30	9.97	9.88	8.21	7.37	7.25	6.75	6.25	6.25	6.20	6.06	6.25	6.31	7.23
1930–31	6.75	6.25	5.46	5.20	5.06	4.82	4.50	4.46	4.37	4.60	4.44	4.54	5.04
1931–32	4.81	3.49	3.36	3.44	3.50	3.38	3.38	2.85	2.45	2.62	2.81	2.82	3.24
1932–33	2.91	2.75	2.52	2.58	2.47	2.48	2.70	3.04	3.83	3.68	3.60	------	[2] 2.96
1933–34	4.42	4.14	3.94	3.69	------	------	------	------	------	------	------	------	------
	PEA, BOSTON [3]												
1923–24	7.40	7.75	7.79	7.12	7.06	7.40	7.30	7.28	7.12	7.12	7.16	7.68	7.35
1924–25	8.04	8.18	8.10	8.00	6.94	7.20	6.91	6.60	6.31	6.34	6.17	5.89	7.06
1925–26	5.50	5.49	5.86	5.90	5.67	5.49	5.32	5.06	5.01	5.48	5.65	5.48	5.49
1926–27	5.28	5.98	6.32	6.11	5.86	5.66	5.38	5.28	5.46	6.29	6.48	6.62	5.89
1927–28	6.34	6.18	6.12	6.16	6.69	7.88	8.71	9.81	10.08	10.18	10.30	10.22	8.22
1928–29	9.94	9.75	9.55	9.50	9.95	10.97	11.13	10.41	10.45	10.38	9.97	10.32	10.19
1929–30	10.56	10.12	8.66	8.09	8.12	8.00	7.62	7.12	7.22	7.31	7.02	7.81	8.14
1930–31	8.25	7.12	6.38	6.32	6.19	5.75	5.66	5.55	5.25	5.06	4.98	4.91	5.95
1931–32	4.62	4.25	4.19	3.62	3.19	3.06	2.88	2.75	2.62	2.58	2.71	3.11	3.30
1932–33	3.18	2.53	2.39	2.18	2.18	2.12	2.50	3.19	3.38	3.08	3.88	4.32	2.91
1933–34	4.08	3.59	3.62	3.12	------	------	------	------	------	------	------	------	------
	SMALL WHITE, SAN FRANCISCO [4]												
1923–24	6.75	6.05	6.09	5.92	5.92	6.18	6.03	6.02	6.04	6.29	7.04	7.29	6.33
1924–25	7.86	8.00	7.89	7.18	7.22	7.71	7.54	7.49	7.38	7.31	7.42	7.42	7.54
1925–26	7.32	6.20	5.71	5.98	6.26	6.25	5.97	5.87	5.62	5.57	5.83	5.95	6.04
1926–27	5.66	5.89	5.94	5.81	5.83	5.85	5.86	6.34	7.17	8.26	8.57	8.58	6.65
1927–28	7.75	5.60	5.88	5.80	6.21	6.66	8.42	9.20	9.28	9.03	8.75	8.36	7.58
1928–29	7.15	8.11	8.40	8.52	9.23	9.99	9.90	9.59	9.45	9.45	10.59	------	[2] 9.13
1929–30	------	8.67	8.55	8.06	7.38	7.83	8.12	7.87	7.83	7.64	7.43	6.99	[2] 7.85
1930–31	7.02	6.09	5.20	4.86	4.56	4.51	4.28	4.24	4.27	4.02	3.67	3.73	4.70
1931–32	3.56	2.98	3.38	3.12	2.92	2.58	2.48	2.34	2.21	2.25	2.35	2.63	2.73
1932–33	2.99	2.73	2.60	2.59	2.36	2.42	2.44	3.29	4.17	4.23	4.11	4.51	3.20
1933–34	4.31	3.71	3.70	3.41	------	------	------	------	------	------	------	------	------
	CALIFORNIA, LIMA, NEW YORK [3]												
1923–24	9.40	9.84	10.41	10.09	10.81	11.30	12.40	12.68	12.48	12.59	12.62	13.04	11.47
1924–25	13.62	14.42	14.12	13.89	14.41	15.00	14.79	14.85	14.94	15.27	15.79	16.27	14.78
1925–26	15.92	14.11	13.24	11.88	11.83	12.06	11.20	10.13	9.15	8.88	8.76	8.55	11.31
1926–27	8.94	8.44	7.68	7.01	7.14	6.94	6.97	6.97	6.86	6.74	6.68	6.67	7.25
1927–28	6.96	6.97	6.85	6.83	7.00	7.87	8.33	9.06	9.69	9.75	9.90	10.17	8.28
1928–29	9.90	9.76	10.56	12.01	12.61	13.42	13.50	13.50	14.40	15.25	15.90	16.17	13.08
1929–30	16.76	14.39	13.27	12.95	12.28	12.07	12.71	12.71	12.67	12.45	12.01	11.95	13.02
1930–31	12.05	9.90	8.74	7.37	7.58	7.94	7.56	7.50	7.40	6.55	5.98	6.29	7.90
1931–32	6.08	5.78	5.88	5.50	5.10	4.56	4.26	4.26	4.28	4.40	4.49	4.96	4.96
1932–33	5.41	5.41	4.86	4.63	4.55	4.52	4.55	5.01	6.29	6.41	6.64	7.00	5.44
1933–34	6.80	6.31	6.07	5.92	------	------	------	------	------	------	------	------	------

[1] Quotations are for wholesale prices to the local trade.
[2] Average for months shown.
[3] Prices represent prevailing values of the commodity and grade specified, as indicated by sales from receivers to wholesale distributors. Pea beans at Boston quoted as "New York and Michigan hand-picked."
[4] Quotations for shipment f.o.b. rail California.

Bureau of Agricultural Economics; compiled from the Chicago Daily Trade Bulletin; Boston Produce Market Report, weekly; San Francisco Commercial News, daily; and New York Producers Price Current, daily.

See 1930 Yearbook, pp. 794–795, for data for earlier years.

Table 273.—*Soybeans: Production in specified countries, 1924–25 to 1933–34*

Crop year	United States	Manchuria [1]	Chosen	Japan	Dutch East Indies
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1924–25	5,190	92,667	18,723	16,596	3,536
1925–26	5,131	116,667	23,609	18,473	3,933
1926–27	6,063	135,000	22,276	12,512	3,672
1927–28	7,596	163,319	24,300	16,704	3,971
1928–29	8,819	177,804	19,510	15,239	4,303
1929–30	8,670	178,389	20,434	13,592	3,917
1930–31	12,217	193,564	22,989	15,531	4,693
1931–32	15,463	192,058	21,155	12,719	4,722
1932–33	13,121	156,817	22,578		5,471
1933–34	11,177	191,255	[2] 24,093		

[1] Manchuria produces about 97 percent of the soybean production of China. Production figures for China are not available.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from official sources.

Table 274.—*Soybeans:* [1] *Acreage, yield, production, and weighted average price per bushel received by producers, by States, average 1926–30, annual 1932 and 1933*

State	Beans gathered						Total acreage (except for hay) [3]			Total production [3]			Price for crop of—	
	Acreage [2]		Yield per acre		Production									
	1932	1933 [4]	1932	1933 [4]	1932	1933 [4]	Average, 1926–30	1932	1933 [4]	Average, 1926–30	1932	1933 [4]	1932	1933 [5]
	1,000 acres	*1,000 acres*	*Bu.*	*Bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*Dollars*	*Dollars*
Ohio	25	21	15.5	16.0	388	336	47	25	21	662	388	336	0.62	0.70
Indiana	134	110	16.0	15.0	2,144	1,650	110	134	110	1,522	2,144	1,650	.56	.59
Illinois	315	290	20.0	15.0	6,300	4,350	229	315	290	3,535	6,300	4,350	.47	.61
Michigan	2	2	13.0	12.0	26	24	2	2	2	25	26	24	.58	.78
Wisconsin	5	6	12.0	11.5	60	69	2	5	6	23	60	69	.60	.88
Iowa	46	59	18.0	17.0	828	1,003	42	46	59	636	828	1,003	.55	.62
Missouri	89	132	12.5	11.5	1,112	1,518	93	89	132	1,007	1,112	1,518	.68	.76
Kansas	11	11	7.3	8.5	80	94	7	11	11	66	80	94	.78	.81
Delaware	27	27	9.0	14.0	243	378	18	27	27	201	243	378	.86	1.07
Maryland	6	6	12.0	13.0	72	78	6	6	6	73	72	78	.83	.84
Virginia	16	16	9.5	12.5	152	200	30	33	25	344	314	312	.64	.87
West Virginia	1	2	10.0	12.0	10	24	3	3	3	42	30	36	1.32	1.56
North Carolina	80	76	12.0	11.0	960	836	200	230	200	2,813	2,760	2,200	.59	.89
South Carolina	7	6	10.5	10.0	74	60	32	25	25	364	262	250	.82	1.05
Georgia	6	6	10.0	9.0	60	54	16	13	10	171	130	90	1.43	1.28
Kentucky	7	6	14.0	12.5	98	75	19	22	19	234	308	238	.88	.97
Tennessee	18	17	7.0	7.5	126	128	70	18	17	827	126	128	.95	1.00
Alabama	7	4	14.0	12.0	98	48	16	10	7	189	140	84	1.25	1.37
Mississippi	8	7	11.0	14.0	88	98	37	25	23	516	275	322	1.12	1.04
Arkansas	4	4	13.0	14.5	52	58	17	12	11	232	156	160	.94	1.11
Louisiana	11	6	10.4	10.5	114	63	58	98	107	627	1,019	1,124	1.34	1.54
Oklahoma	3	3	12.0	11.0	36	33	10	4	4	93	48	44	1.09	1.11
United States	828	817	15.8	13.7	13,121	11,177	1,063	1,153	1,115	14,199	16,821	14,488	[6] .64	[6] .81

[1] Soybeans planted in corn in Northern States not included. For Southern States such acreage is included reduced to its equivalent solid acreage.
[2] Solid equivalent of acres from which the soybeans were gathered.
[3] The large acreage and production of soybeans grazed or hogged off in the Southern States are included in these figures, but the small acreage and production of soybeans thus harvested in the North are not included.
[4] Preliminary.
[5] Average price for 3 months.
[6] Average of State prices for gathered beans weighted by total equivalent production for all purposes.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 275.—*Soybeans and soybean oil: International trade, average 1925–29, annual 1930–32*

SOYBEANS

Country	Calendar year							
	Average, 1925–29		1930		1931		1932 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
China [2]	3,731,214	0	3,810,478	0	5,074,744	0	5,745,648	0
Total	3,731,214	0	3,810,478	0	5,074,744	0	5,745,648	0
PRINCIPAL IMPORTING COUNTRIES								
Germany	0	1,390,622	0	1,959,417	0	2,236,727	0	2,616,842
Japan	5,574	1,015,825	4,938	953,773	4,483	1,220,267	3,230	1,040,083
Denmark	0	394,965	0	388,591	0	523,993	0	503,955
United Kingdom	0	305,643	0	204,532	0	247,072	0	356,008
Sweden	0	166,799	2	108,317	0	68,753	0	19,856
Italy	[3] 42	97,395	10	17,734	0	88,820	0	47,409
Netherlands	1,192	58,510	329	42,398	1,182	70,952	688	91,897
United States [4]	0	4,064	0	3,852	[5] 0	3,544	[5] 0	2,551
Total	6,808	3,433,823	5,279	3,678,614	5,665	4,460,128	3,918	4,678,601

SOYBEAN OIL

Country	Average, 1925–29 Exports	Average, 1925–29 Imports	1930 Exports	1930 Imports	1931 Exports	1931 Imports	1932 [1] Exports	1932 [1] Imports
PRINCIPAL EXPORTING COUNTRIES								
China	244,894	0	251,909	0	196,119	0	256,610	0
Germany	45,828	30,004	49,520	28,833	55,137	20,441	68,424	8,463
Denmark	36,742	3,670	28,609	2,084	40,937	1,764	49,352	4,977
Japan	14,393	323	34,156	[6] 214	16,009	0	14,115	0
Sweden	12,917	10,182	4,916	13,254	2,312	24,302	1,686	28,645
Total	354,774	44,179	369,110	44,385	310,514	46,507	390,187	42,085
PRINCIPAL IMPORTING COUNTRIES								
Netherlands	40,024	109,176	22,999	124,768	24,140	62,175	31,808	56,945
United Kingdom	49,942	75,917	35,058	56,529	32,294	62,265	5,967	61,242
United States	4,528	19,545	4,962	8,348	4,551	4,916	2,647	405
France	159	17,401	6	23,978	0	7,337	375	9,427
Morocco	0	[7] 9,855	0	5,430	0	9,911	0	--------
Algeria	19	6,394	[6] 22	11	[6] 0	0	--------	1,131
Austria	17	6,011	0	6,024	1	6,062	1	6,566
Total	94,689	244,299	63,047	225,088	60,986	152,666	40,798	135,716

[1] Preliminary.
[2] These figures are for yellow soybeans, which variety constitutes fully 98 percent of the soybean exports.
[3] 3-year average.
[4] Imports for consumption.
[5] Domestic exports of soybeans are not separately reported in Foreign Commerce and Navigation of the United States; if any, included with exports of "oilseeds." Soybeans inspected for export began in October 1931, there being 7,978,800 pounds exported from October to December; inspected for export calendar year 1932, 252,345,480 pounds.
[6] International Yearbook of Agricultural Statistics.
[7] 4-year average.

Bureau of Agricultural Economics; official sources except where otherwise noted.

TABLE 276.—*Soybeans: Average price per bushel received by producers, United States, 1924–25 to 1933–34*

Year	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Weighted average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924–25	2.23	2.16	2.36	2.59	2.64	2.76	2.77	2.81	2.70	2.71	2.40	2.38	2.49
1925–26	2.27	2.18	2.17	2.38	2.33	2.39	2.27	2.37	2.67	2.71	2.31	2.27	2.35
1926–27	1.97	1.85	1.83	1.90	2.03	1.98	2.07	2.15	2.20	2.14	2.06	1.91	2.00
1927–28	1.86	1.70	1.61	1.70	1.69	1.85	1.93	2.06	2.13	2.12	2.01	1.89	1.84
1928–29	1.72	1.69	1.70	1.82	1.93	2.13	2.19	2.30	2.41	2.46	2.15	1.87	1.92
1929–30	1.79	1.70	1.73	1.85	1.91	2.00	2.07	2.11	2.16	1.96	1.90	1.80	1.86
1930–31	1.64	1.48	1.44	1.46	1.40	1.42	1.38	1.39	1.29	1.12	.94	.82	1.42
1931–32	.58	.52	.61	.62	.59	.66	.65	.64	.61	.58	.58	.57	.60
1932–33	.55	.45	.44	.45	.45	.48	.58	.86	.98	1.04	.94	.85	.59
1933–34	.68	.69	.73										

Bureau of Agricultural Economics. Based upon returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; yearly price obtained by weighting monthly prices by estimated monthly marketings. For previous data see 1930 or earlier Yearbooks.

TABLE 277.—*Soybeans for seed: Average wholesale selling price per bushel at Baltimore and St. Louis, 1924–33*

Year	Baltimore						St. Louis					
	Jan.	Feb.	Mar.	Apr.	May	Average	Jan.	Feb.	Mar.	Apr.	May	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924	2.10	2.40	2.40	2.70	3.00	2.52	2.80	2.80	2.80	2.80	2.75	2.79
1925	2.85	2.95	3.15	2.95	2.35	2.85	2.40	2.40	2.40	2.25	2.10	2.31
1926	2.00	2.05	2.10	2.15	2.75	2.21	2.15	2.15	2.30	2.55	2.90	2.41
1927	1.80	1.80	1.80	1.80	1.85	1.81	2.70	2.70	2.40	2.50	2.70	2.60
1928	1.95	1.90	1.95	1.95	2.15	1.98	1.80	1.80	1.85	2.00	2.25	1.94
1929	2.25	2.35	2.40	2.40	2.70	2.42	2.55	2.55	2.60	2.75	2.85	2.66
1930	2.10	2.10	2.10	2.25	2.65	2.24	2.15	2.25	2.25	2.25	2.25	2.23
1931	2.25	2.25	2.25	2.25	2.25	2.25	1.80	1.80	1.80	1.80	1.95	1.83
1932	.90	.90	.90	.90	.85	.89	1.05	1.05	.90	.90	.80	.94
1933	.80	.80	.80	1.00	1.45	.97	.80	.80	.90	1.05	1.30	.97

Bureau of Agricultural Economics. Compiled from weekly reports to the Bureau from wholesale seedsmen in the markets. These prices are the average wholesale selling prices for high-quality seed.

TABLE 278.—*Soybean oil: Soybeans crushed and crude oil produced, 1923–24 to 1932–33*

Year	Soybeans crushed [1]					Oil produced				
	Oct.–Dec.	Jan.–Mar.	Apr.–June	July–Sept.	Total	Oct.–Dec.	Jan.–Mar.	Apr.–June	July–Sept.	Total
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1923–24	2,230	3,232	564	102	6,128	286	388	72	13	759
1924–25	3,550	7,478	3,038	4,336	18,402	477	870	360	562	2,269
1925–26	5,486	7,746	7,450	358	21,040	728	990	874	46	2,638
1926–27	5,132	6,804	6,032	2,104	20,072	735	862	776	286	2,659
1927–28	8,788	10,278	8,792	5,654	33,512	1,164	1,289	1,132	789	4,374
1928–29	11,480	21,190	9,666	10,560	52,896	1,506	3,046	1,277	1,456	7,285
1929–30	39,658	25,288	20,716	14,324	99,986	5,231	3,343	2,905	1,945	13,424
1930–31	43,546	64,824	77,346	58,432	244,148	6,194	9,107	10,996	8,391	34,688
1931–32	77,606	102,332	65,488	38,072	283,498	10,655	14,682	9,257	5,351	39,945
1932–33	72,682	62,264	47,940	23,070	205,956	10,155	8,567	6,734	3,322	28,778

[1] The output of meal is usually about 80 percent of the soybeans crushed.

Bureau of Agricultural Economics; compiled from reports of the census, Animal and Vegetable Fat and Oils.

TABLE 279.—*Soybean oil, crude: Average price per pound, in barrels, New York, by months, 1910–11 to 1933–34*

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Average
	Imported												
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1910–11	------	------	------	7.31	7.81	7.56	6.97	6.88	6.33	6.38	6.34	6.62	[1] 6.91
1911–12	7.62	7.31	6.90	6.75	6.55	6.76	6.69	6.81	6.51	6.57	6.56	6.56	6.80
1912–13	6.62	6.38	6.00	5.91	6.04	5.94	5.94	6.00	6.00	6.27	6.50	6.50	6.18
1913–14	6.48	6.44	6.44	6.44	6.45	6.38	6.38	6.38	6.25	6.25	6.80	6.84	6.46
1914–15	6.75	5.84	5.34	5.70	6.23	6.41	6.42	6.58	6.34	6.16	5.94	5.91	6.14
1915–16	6.61	7.25	7.60	8.22	8.64	9.25	9.46	9.11	8.25	7.78	7.78	8.48	8.20
1916–17	10.06	11.11	11.90	12.06	12.56	13.35	13.88	14.72	14.90	13.60	13.88	14.72	13.06
1917–18	15.70	16.75	17.55	18.17	18.70	19.18	19.62	19.25	18.22	18.28	18.25	18.31	18.16
1918–19	18.38	17.70	17.00	15.27	13.06	12.95	15.41	17.00	18.84	20.16	19.12	17.25	16.84
1919–20	17.47	17.52	17.69	19.02	18.28	18.69	17.94	17.33	17.00	15.55	13.81	13.60	16.90
1920–21	12.32	11.22	9.00	8.55	6.56	6.25	7.00	7.62	7.86	8.11	8.72	8.28	8.46
1921–22	9.22	8.88	9.15	8.88	9.12	10.81	11.38	nom	nom	nom	nom	nom	[1] 9.63
1922–23	10.00	10.33	10.69	11.34	11.69	12.35	13.00	12.91	12.62	12.00	11.62	11.28	11.65
1923–24	10.84	11.00	11.38	12.00	12.50	12.25	11.75	12.16	12.03	12.44	12.60	12.69	11.97
1924–25	12.69	13.12	13.44	13.32	13.25	13.31	13.38	13.38	13.38	13.38	13.38	13.38	13.28
1925–26	13.38	13.38	13.38	13.38	13.38	13.38	13.38	13.38	13.75	14.00	14.00	14.00	13.57
1926–27	13.60	12.50	12.03	12.02	12.12	12.12	12.19	12.38	12.19	12.12	12.12	12.12	12.29
1927–28	12.12	12.12	12.12	12.12	12.12	12.12	12.12	12.19	12.38	12.38	12.38	12.38	12.21
1928–29	12.38	12.38	12.38	12.38	12.38	12.38	11.98n	11.75	11.75n	11.12	11.12	11.32	11.94
1929–30	12.62	12.62	12.25	12.25	12.03	11.38	11.38	11.25	10.98	10.88	10.88	10.82	11.61
1930–31	10.38	10.25	10.12	9.44	8.75	8.75	8.75	8.75	8.75	8.75	8.75	8.75	9.18
1931–32	8.75	8.75	8.75	8.25	8.25	8.25	8.25	------	------	------	------	------	[1] 8.46
	Domestic [2]												
1929–30	13.00	13.00	12.50	11.75	11.50	10.72	10.40	10.64	10.80	10.72	10.38	10.18	11.30
1930–31	9.30	8.50	8.30	7.38	7.50	7.50	7.45	7.30	7.30	7.30	7.20	6.55	7.63
1931–32	5.65	5.55	5.18	4.81	4.45	4.45	4.45	4.40	4.15	4.12	4.12	4.12	4.62
1932–33	4.40	4.25	4.20	4.35	4.50	4.72	4.90	6.30	7.05	8.20	9.05	8.20	5.84
1933–34	7.60	7.30	6.98	------	------	------	------	------	------	------	------	------	-------

[1] Average for months quoted.
[2] Domestic oil not quoted prior to October 1929, as production in this country had not reached commercial proportions.

Bureau of Agricultural Economics. Compiled from the Oil, Paint, and Drug Reporter. Prices are average of quotations on Saturdays during the month.

Through August 1911, quotations are for English, spot; September 1911–April 1916, English or Manchuria; May 1916–January 1919, Manchuria only; February 1919, and subsequently, origin not indicated. Quotations for imported do not appear after April 1932, as importations had practically ceased as a result of a prohibitive tariff.

TABLE 280.—*Cowpeas:*[1] *Acreage, yield, production, and weighted average price per bushel received by producers, by States, average 1926–30, annual 1932 and 1933*

State	Peas gathered: Acreage[2] 1932	Peas gathered: Acreage[2] 1933[3]	Peas gathered: Yield per acre 1932	Peas gathered: Yield per acre 1933[3]	Peas gathered: Production 1932	Peas gathered: Production 1933[3]	Total acreage (except for hay)[4] Average, 1926–30	Total acreage (except for hay)[4] 1932	Total acreage (except for hay)[4] 1933[3]	Total production[4] Average, 1926–30	Total production[4] 1932	Total production[4] 1933[3]	Price for crop of— 1932	Price for crop of— 1933[5]
	1,000 acres	*1,000 acres*	*Bu.*	*Bu.*	*1,000 bu.*	*1,000 bu.*	*1,000 acres*	*1,000 acres*	*1,000 acres*	*1,000 bu.*	*1,000 bu.*	*1,000 bu.*	*Dollars*	*Dollars*
Indiana	7	7	7.5	8.0	52	56	21	7	7	177	52	56	0.76	0.80
Illinois	52	56	10.5	7.0	546	392	52	52	56	394	546	392	.70	.75
Missouri	29	29	8.8	10.0	255	290	30	29	29	280	255	290	.96	1.00
Kansas	1	1	5.5	5.8	6	6	2	1	1	18	6	6	1.11	1.57
Delaware	2	2	8.5	12.0	17	24	3	2	2	35	17	24	.94	1.19
Maryland	2	2	8.5	10.0	17	20	2	2	2	20	17	20	1.09	1.12
Virginia	8	8	7.0	8.5	56	68	17	20	18	155	140	153	.81	1.12
North Carolina	39	32	9.5	10.0	370	320	94	121	89	1,042	1,150	890	.84	.97
South Carolina	104	96	8.0	8.0	832	768	185	170	150	1,503	1,360	1,200	.68	.82
Georgia	96	91	9.2	9.4	883	855	144	174	161	1,360	1,601	1,513	.67	.88
Florida	8	8	8.5	7.0	68	56	20	21	21	212	178	147	1.11	1.33
Kentucky	11	8	10.0	9.0	110	72	25	27	19	300	270	171	1.00	.96
Tennessee	37	30	4.7	5.5	174	165	56	37	30	583	174	165	.85	.89
Alabama	95	76	9.5	10.0	902	760	146	112	92	1,455	1,064	920	.74	.96
Mississippi	54	42	7.0	9.4	378	395	85	86	58	861	602	545	.92	.96
Arkansas	40	44	10.5	12.0	420	528	77	94	87	835	987	1,044	.82	.94
Louisiana	21	23	10.5	10.8	220	248	37	70	66	419	735	713	1.16	1.18
Oklahoma	17	15	11.0	9.5	187	142	33	40	43	354	440	408	1.01	1.15
Texas	72	74	9.2	9.2	662	681	137	162	141	1,461	1,490	1,297	.90	1.19
United States	695	644	8.9	9.1	6,155	5,846	1,169	1,227	1,072	11,489	11,084	9,954	[6] .83	[6] .98

[1] Cowpeas planted in corn in Northern States not included. For Southern States such acreage is included reduced to its equivalent solid acreage.
[2] Solid equivalent of acres from which the cowpeas were gathered.
[3] Preliminary.
[4] The large acreage and production of cowpeas grazed or hogged off in the Southern States are included in these figures, but the small acreage and production of cowpeas thus harvested in the North are not included.
[5] Average price for 5 months.
[6] Average of State prices for gathered peas weighted by total equivalent production for all purposes.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 281.—*Cowpeas: Average price per bushel received by producers, United States, 1924–25 to 1933–34*

Year	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Weighted average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924–25	2.56	2.41	2.32	2.34	2.56	2.82	3.16	3.43	3.67	3.70	3.84	3.67	3.20
1925–26	3.24	3.12	2.93	2.98	2.87	3.03	3.21	3.37	3.50	3.43	3.47	3.47	3.25
1926–27	3.22	2.79	2.34	2.05	1.95	1.94	1.94	1.89	1.93	1.90	1.90	1.93	1.99
1927–28	1.84	1.80	1.70	1.72	1.65	1.71	1.74	1.76	1.86	2.00	2.09	2.09	1.90
1928–29	2.01	1.82	1.83	1.83	2.02	2.15	2.45	2.63	2.88	3.05	3.24	3.19	2.63
1929–30	2.99	2.49	2.30	2.22	2.28	2.40	2.59	2.73	2.85	2.93	3.00	2.93	2.64
1930–31	2.66	2.41	2.20	2.05	1.86	1.80	1.75	1.82	1.87	1.93	1.96	1.89	1.94
1931–32	1.63	1.27	.98	.93	.93	.92	.86	.88	.82	.76	.72	.67	.88
1932–33	.70	.67	.70	.63	.60	.60	.60	.62	.69	.89	1.02	1.21	.80
1933–34	1.30	1.06	.94	.87	.92	------	------	------	------	------	------	------	------

Bureau of Agricultural Economics. Based upon returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; yearly price obtained by weighting monthly prices by estimated monthly marketings. For previous data see 1930 or earlier Yearbooks.

TABLE 282.—*Cowpeas for seed: Average wholesale selling price per bushel at Baltimore and St. Louis, 1924–33*

Year	Baltimore						St. Louis					
	Jan.	Feb.	Mar.	Apr.	May	Average	Jan.	Feb.	Mar.	Apr.	May	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924	3.00	3.30	3.15	3.40	3.45	3.26	2.75	2.95	3.00	3.05	3.55	3.06
1925	3.90	3.90	3.90	3.90	3.95	3.91	3.90	4.00	4.10	4.10	4.10	4.04
1926	4.25	4.25	4.25	4.25	4.20	4.24	4.50	4.45	4.20	4.10	4.05	4.26
1927	2.25	2.25	2.15	2.10	2.10	2.17	2.40	2.40	2.40	2.40	2.40	2.40
1928	1.80	1.80	2.05	2.20	2.30	2.03	2.40	2.40	2.40	2.50	2.70	2.48
1929	2.85	3.30	3.75	3.75	3.75	3.48	3.50	3.60	3.60	3.70	3.75	3.63
1930	3.30	3.30	3.30	3.30	3.30	3.30	3.15	3.15	3.15	3.10	3.00	3.11
1931	3.00	2.90	2.50	2.50	2.55	2.69	2.40	2.40	2.40	2.40	2.55	2.43
1932	1.05	1.10	1.10	1.10	1.00	1.07	1.20	1.20	1.10	1.05	1.05	1.12
1933	.80	.80	.80	1.00	1.40	.96	.85	.85	.90	1.00	1.40	1.00

Bureau of Agricultural Economics. Compiled from weekly reports to the Bureau from wholesale seedsmen in the markets. These prices are the average wholesale selling prices for high-quality seed.

TABLE 283.—*Velvetbeans:*[1] *Acreage, yield, production, and price per ton received by producers December 1, by States, averages, and annual 1932 and 1933*

State	Acreage			Yield per acre			Total production			Price Dec. 1	
	Average, 1926–30	1932	1933 [2]	Average, 1924–30	1932	1933 [2]	Average, 1926–30	1932	1933 [2]	1932	1933
	1,000 acres	*1,000 acres*	*1,000 acres*	*Lb.*	*Lb.*	*Lb.*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*Dollars*	*Dollars*
South Carolina	72	60	44	939	850	950	36	26	21	6.50	13.00
Georgia	799	663	728	791	870	820	349	288	298	4.50	8.40
Florida	113	140	136	869	600	600	49	42	41	4.25	5.10
Alabama	317	463	458	769	825	900	130	191	206	4.50	8.00
Mississippi	32	42	43	1,009	1,250	1,300	19	26	28	7.00	14.00
Louisiana	29	33	33	1,086	780	920	17	13	15	8.00	14.00
United States	1,373	1,401	1,442	808.9	836.5	844.7	605	586	609	4.76	8.60

[1] The figures refer to the yield and entire production of velvetbeans in the hull. The pods are gathered from ¼ to ⅓ of the acreage.
[2] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 284.—*Broomcorn: Acreage, production, and average price per ton received by producers, United States, 1919–33*

Year	Acreage harvested	Average yield per acre	Production	Price [1]	Year	Acreage harvested	Average yield per acre	Production	Price [1]
	Acres	*Pounds*	*Short tons*	*Dollars*		*Acres*	*Pounds*	*Short tons*	*Dollars*
1919	*338,000*	*334.6*	*56,500*	----------	1927	232,000	346.7	40,200	103.21
1919	327,000	333.4	54,600	155.00	1928	299,000	360.7	53,800	97.06
1920	266,000	283.9	37,800	127.54	*1929*	*312,000*	*305.5*	*47,600*	----------
1921	222,000	352.8	39,200	71.63	1929	310,000	304.5	47,300	114.52
1922	275,000	278.1	38,200	219.27	1930	391,000	254.5	49,800	65.60
1923	536,000	303.2	81,400	160.17	1931	298,000	303.2	45,200	45.15
1924	434,000	358.0	77,700	96.00	1932	304,000	243.6	36,900	37.43
1925	226,000	276.2	31,200	142.60	1933 [2]	296,000	221.1	32,900	108.94
1926	319,000	342.7	54,700	79.07					

[1] From 1919 to 1924, Nov. 15 price; 1925 and 1926, Dec. 1 price; 1927–32, average price for the crop marketing season; 1933, Dec. 1 price.
[2] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board, revised, 1919–28. See introductory text.

TABLE 285.—*Broomcorn: Acreage, yield, production, and average price per ton received by producers, by States, averages, and annual 1932 and 1933*

State	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1926–30	1932	1933 [1]	Average, 1921–30	1932	1933 [1]	Average, 1926–30	1932	1933 [1]	1932	1933 [2]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Pounds*	*Pounds*	*Pounds*	*Short tons*	*Short tons*	*Short tons*	*Dollars*	*Dollars*
Illinois	27	28	38	517	538	320	6,500	7,500	6,100	57	141
Missouri	1	1	1	332	270	325	180	100	200	53	110
Kansas	44	31	41	328	215	200	6,840	3,300	4,100	34	94
Oklahoma	138	142	115	293	210	210	21,440	14,900	12,100	34	110
Texas	12	9	8	321	290	290	1,740	1,300	1,200	33	105
Colorado	52	51	55	311	220	160	7,660	5,600	4,400	33	95
New Mexico	36	42	38	279	200	250	4,800	4,200	4,800	24	92
United States	310	304	296	317.7	243.6	221.1	49,160	36,900	32,900	37.43	108.94

[1] Preliminary.
[2] Dec. 1 price.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 286.—*Hay: Acreage, yield, production, and price per ton received by producers Dec. 1, foreign trade, United States, 1919–33*

Year	Tame hay				Wild hay				All hay	
									Foreign trade, year beginning July	
	Acreage harvested	Average yield per acre	Production	Price Dec. 1	Acreage harvested	Average yield per acre	Production	Price Dec. 1	Domestic exports [1]	Imports [1]
	1,000 acres	*Short tons*	*1,000 short tons*	*Dollars*	*1,000 acres*	*Short tons*	*1,000 short tons*	*Dollars*	*1,000 short tons*	*1,000 short tons*
1919	*55,653*	*1.34*	*74,724*		*17,126*	*0.91*	*15,631*			
1919	56,020	1.37	76,589	20.15	17,124	.93	15,893	16.52	67	252
1920	56,769	1.34	76,164	17.78	16,264	.95	15,504	11.39	55	126
1921	57,448	1.24	71,035	12.09	15,622	.88	13,786	6.57	61	5
1922	59,280	1.36	80,790	12.55	16,152	.89	14,362	7.32	53	35
1923	57,717	1.30	75,286	14.10	15,828	.89	14,132	8.18	24	403
1924	59,058	1.36	80,118	13.80	15,166	.83	12,613	7.92	25	119
1925	55,064	1.22	67,155	13.95	14,663	.79	11,612	8.56	18	431
1926	54,851	1.23	67,478	14.08	13,337	.67	8,971	10.04	15	209
1927	56,930	1.47	83,648	11.30	14,535	1.03	15,010	6.59	17	84
1928	53,395	1.36	72,586	12.22	12,924	.89	11,525	7.25	14	40
1929	*54,311*	*1.37*	*74,313*		*13,517*	*.81*	*10,968*			
1929	55,017	1.38	76,110	12.19	13,586	.82	11,194	8.04	9	60
1930	52,623	1.21	63,566	12.62	13,793	.78	10,744	7.10	7	121
1931	54,136	1.21	65,341	9.03	12,253	.68	8,367	6.17	3	20
1932	53,282	1.32	70,199	6.65	14,275	.85	12,137	3.99	2	9
1933 [2]	53,829	1.22	65,852	8.10	12,315	.70	8,633	5.21		

[1] Compiled from Monthly Summary of Foreign Commerce of the United States, June issues, 1919–26; January and June issues, 1917–33, and official records of the Bureau of Foreign and Domestic Commerce.
[2] Preliminary.

Bureau of Agricultural Economics.
Italic figures are census returns; other acreage, production, and yield figures are estimates of the Crop Reporting Board, revised, 1919–28. See introductory text. See 1927 Yearbook, p. 927, for data for earlier years.

TABLE 287.—*Hay, tame: Acreage, yield, production, and price per ton received by producers Dec. 1, by States, averages, and annual 1932 and 1933*

State and division	Acreage harvested			Yield per acre			Production			Price Dec. 1	
	Average, 1926–30	1932	1933 [1]	Average, 1921–30	1932	1933 [1]	Average, 1926–30	1932	1933 [1]	1932	1933
	1,000 acres	*1,000 acres*	*1,000 acres*	*Short tons*	*Short tons*	*Short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*Dollars*	*Dollars*
Maine	1,024	966	966	0.89	0.83	0.83	925	804	804	9.90	10.60
New Hampshire	365	336	336	1.03	.90	.96	389	303	322	13.00	14.60
Vermont	922	916	916	1.18	1.21	1.05	1,121	1,104	962	9.80	13.50
Massachusetts	356	332	330	1.26	1.22	1.31	458	404	433	16.00	16.30
Rhode Island	37	34	35	1.20	1.21	1.26	46	41	44	17.70	17.20
Connecticut	275	249	252	1.24	1.24	1.30	357	309	328	16.60	15.60
New York	4,366	3,990	4,030	1.16	1.22	1.14	5,341	4,871	4,576	7.20	9.50
New Jersey	224	202	202	1.52	1.57	1.73	363	318	350	13.00	12.30
Pennsylvania	2,694	2,425	2,424	1.24	1.07	1.28	3,392	2,605	3,107	9.50	10.50
North Atlantic	10,263	9,450	9,491	1.16	1.14	1.15	12,392	10,759	10,926	9.20	10.94
Ohio	2,688	2,383	2,468	1.10	1.05	.96	2,926	2,496	2,378	4.70	6.70
Indiana	1,794	1,764	1,703	1.13	1.25	1.06	2,077	2,208	1,813	5.00	7.50
Illinois	2,715	2,313	2,340	1.14	1.34	1.21	3,217	3,088	2,824	5.20	7.60
Michigan	2,660	2,397	2,491	1.12	1.32	1.23	2,999	3,164	3,059	5.50	6.60
Wisconsin	3,388	2,881	2,949	1.47	1.26	1.25	5,220	3,633	3,685	9.80	10.10
Minnesota	2,482	2,566	2,706	1.37	1.43	1.16	3,523	3,672	3,130	6.10	7.00
Iowa	3,124	2,929	3,172	1.39	1.59	1.31	4,233	4,645	4,141	5.80	6.10
Missouri	3,294	2,847	2,797	.95	.90	.91	3,077	2,572	2,547	5.50	7.00
North Dakota	1,042	1,366	1,281	1.27	1.18	.72	1,258	1,615	919	4.00	4.90
South Dakota	1,160	1,015	1,277	1.18	1.03	.61	1,300	1,045	778	4.25	6.00
Nebraska	1,594	1,680	1,871	1.72	1.76	1.53	2,718	2,960	2,858	4.50	4.80
Kansas	1,238	1,077	1,142	1.61	1.67	1.41	2,080	1,800	1,608	4.70	6.10
North Central	27,179	25,218	26,197	1.26	1.30	1.14	34,628	32,898	29,740	5.71	6.93
Delaware	65	73	73	1.33	1.56	1.67	89	114	122	9.30	10.70
Maryland	384	403	403	1.21	1.16	1.31	465	468	529	9.50	11.40
Virginia	906	832	875	.95	.91	1.13	868	757	992	10.30	11.20
West Virginia	708	620	626	1.00	.90	1.10	706	558	690	10.10	11.20
North Carolina	609	737	680	.93	.73	.81	546	541	553	11.30	13.70
South Carolina	229	287	263	.71	.73	.74	175	210	195	10.00	12.50
Georgia	559	826	706	.58	.58	.51	334	481	358	8.00	10.50
Florida	80	84	78	.64	.46	.45	44	39	35	8.70	11.00
South Atlantic	3,540	3,862	3,704	.91	.82	.94	3,227	3,168	3,474	9.89	11.61
Kentucky	1,201	1,165	1,178	.98	1.01	1.07	1,137	1,180	1,260	7.70	9.00
Tennessee	1,236	1,187	1,175	.96	.88	.96	1,158	1,039	1,132	8.70	10.20
Alabama	450	626	516	.77	.68	.67	353	424	346	7.10	10.10
Mississippi	289	318	315	1.17	1.16	1.15	344	369	363	7.30	9.00
Arkansas	520	544	609	1.02	1.03	1.16	553	561	709	6.60	9.00
Louisiana	164	170	176	1.17	1.30	1.12	211	221	198	6.80	8.00
Oklahoma	438	510	449	1.51	1.46	1.32	634	746	591	5.00	7.00
Texas	498	558	515	1.06	1.15	.99	542	642	508	5.40	7.90
South Central	4,795	5,078	4,933	1.04	1.02	1.04	4,932	5,182	5,107	6.99	8.96
Montana	1,361	1,630	1,548	1.61	1.47	1.25	2,065	2,388	1,934	5.50	6.70
Idaho	1,019	1,102	1,086	2.24	2.43	2.14	2,330	2,673	2,329	4.20	6.30
Wyoming	699	828	874	1.40	1.21	1.17	961	1,005	1,023	6.10	6.80
Colorado	1,273	1,274	1,334	1.80	1.44	1.49	2,298	1,830	1,993	6.50	5.30
New Mexico	157	167	164	1.97	1.93	2.15	323	322	352	7.50	9.30
Arizona	122	137	139	2.53	2.65	2.73	332	363	380	6.40	7.00
Utah	597	650	643	2.22	1.95	1.94	1,330	1,268	1,249	5.60	6.00
Nevada	216	200	207	1.99	2.00	1.75	429	401	362	4.80	5.00
Washington	809	848	822	1.98	2.02	1.76	1,664	1,717	1,443	7.20	10.60
Oregon	902	992	967	1.79	1.72	1.66	1,672	1,705	1,603	6.00	9.40
California	1,632	1,846	1,720	2.43	2.45	2.29	4,096	4,520	3,937	7.40	7.90
Western	8,786	9,674	9,504	1.97	1.88	1.75	17,499	18,192	16,605	6.17	7.34
United States	54,563	53,282	53,829	1.31	1.32	1.22	72,678	70,199	65,852	6.65	8.10

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 288.—*Hay, wild:*[1] *Acreage, yield, production, and price per ton received by producers Dec. 1, by States, averages, and annual 1932 and 1933*

State and division	Acreage harvested			Yield per acre			Production			Price Dec. 1	
	Average, 1926–30	1932	1933 [2]	Average, 1921–30	1932	1933 [2]	Average, 1926–30	1932	1933 [2]	1932	1933
	1,000 acres	*1,000 acres*	*1,000 acres*	*Short tons*	*Short tons*	*Short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*Dollars*	*Dollars*
Maine	6	5	5	0.93	0.90	0.80	6	4	4	7.40	7.80
New Hampshire	6	4	4	.86	.80	.80	6	3	3	8.90	9.50
Vermont	7	6	6	.93	1.00	.80	7	6	5	6.40	8.40
Massachusetts	8	6	6	.97	.85	.90	8	5	5	9.60	10.00
Rhode Island	1	1	1	.85	.85	1.00	1	1	1	9.80	11.60
Connecticut	6	4	4	1.07	1.05	1.10	7	4	4	10.40	11.00
New York	50	40	38	.98	1.00	.95	51	40	36	5.20	7.10
New Jersey	13	12	13	1.32	1.15	1.50	18	14	20	7.00	8.00
Pennsylvania	14	12	9	.90	.70	.80	13	8	7	6.50	7.00
North Atlantic	113	90	86	1.00	.94	.99	117	85	85	6.51	7.91
Ohio	4	4	3	1.03	.70	.70	3	3	2	4.10	5.00
Indiana	11	8	9	.92	.95	.85	10	8	8	3.75	5.00
Illinois	24	16	21	.86	.90	.80	21	14	17	4.00	5.60
Michigan	32	29	31	1.09	.95	.95	35	28	29	4.00	4.70
Wisconsin	197	350	340	1.21	1.05	1.10	235	368	374	5.80	6.20
Minnesota	1,907	1,865	1,772	1.02	1.00	.70	1,871	1,865	1,240	4.10	5.10
Iowa	232	166	163	1.04	1.15	.90	226	191	147	4.50	5.00
Missouri	129	144	141	1.10	1.00	.75	134	144	106	4.40	5.30
North Dakota	1,645	1,862	1,713	.82	.85	.60	1,366	1,583	1,028	3.35	4.70
South Dakota	2,369	2,512	1,256	.61	.65	.50	1,403	1,633	628	3.15	5.40
Nebraska	2,942	3,055	2,933	.75	.75	.60	2,130	2,291	1,760	3.75	4.20
Kansas	911	892	714	.95	1.00	.68	880	892	486	3.20	4.30
North Central	10,405	10,903	9,096	.82	.83	.64	8,314	9,020	5,825	3.70	4.79
Delaware	2	3	3	1.10	1.00	1.15	2	3	3	3.50	6.00
Maryland	2	2	3	.90	.90	.85	2	2	3	6.60	7.00
Virginia	11	7	9	.74	.65	.90	9	5	8	7.00	8.00
West Virginia	9	5	5	.96	.90	.95	8	4	5	7.50	7.70
North Carolina	28	19	20	1.04	.80	1.00	28	15	20	8.80	11.00
South Carolina	10	11	12	.74	.60	.70	6	7	8	7.80	10.00
Georgia	19	18	18	1.00	.90	.95	20	16	17	7.00	7.30
Florida	4	4	4	.84	.70	.60	4	3	2	7.40	10.40
South Atlantic	85	69	74	.95	.80	.89	79	55	66	7.44	8.88
Kentucky	28	10	7	.92	.95	1.00	27	10	7	5.80	6.00
Tennessee	50	40	40	.79	.73	.75	40	29	30	5.40	6.50
Alabama	38	42	42	.77	.90	.75	30	38	32	5.90	7.80
Mississippi	36	38	38	1.02	1.00	1.00	39	38	38	5.20	6.70
Arkansas	140	160	168	1.03	.90	1.05	141	144	176	4.50	6.00
Louisiana	17	26	26	1.10	.75	1.20	17	20	31	5.70	6.50
Oklahoma	490	531	451	.99	.85	.70	500	451	316	3.50	4.60
Texas	183	205	217	.93	.90	.80	184	184	174	5.10	6.90
South Central	982	1,052	989	.97	.87	.81	978	914	804	4.28	5.79
Montana	615	700	665	.86	.85	.75	541	595	499	5.00	6.50
Idaho	95	101	96	1.19	1.50	1.00	112	152	96	3.35	4.80
Wyoming	328	300	276	.91	.75	.60	309	225	166	5.40	6.70
Colorado	361	366	373	1.02	.90	1.10	375	329	410	5.40	5.20
New Mexico	24	23	23	.86	.75	.75	21	17	17	6.50	7.80
Arizona	9	10	10	.77	1.00	.90	7	10	9	5.70	6.00
Utah	70	70	63	1.08	1.05	1.10	72	74	69	4.40	4.90
Nevada	149	135	115	.98	1.20	.90	143	162	104	4.00	4.50
Washington	30	31	29	1.30	1.30	1.15	40	40	33	6.00	8.40
Oregon	232	289	298	.84	1.00	1.10	223	289	328	4.75	6.70
California	137	136	122	1.11	1.25	1.00	158	170	122	5.30	5.80
Western	2,050	2,161	2,070	.96	.95	.90	2,001	2,063	1,853	4.91	6.00
United States	13,635	14,275	12,315	.85	.85	.70	11,489	12,137	8,633	3.99	5.21

[1] Includes prairie, marsh, and salt grasses.
[2] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 289.—*Hay, loose: Average price per ton received by producers, United States, 1924–25 to 1933–34*

Year	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	Weighted average
ALL HAY													
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924–25	13.49	12.95	12.68	12.64	12.88	12.69	12.70	12.83	12.39	12.48	12.17	11.82	12.72
1925–26	12.48	12.25	12.42	12.47	13.07	13.40	13.31	13.03	12.97	12.78	13.12	12.98	12.84
1926–27	12.96	13.04	12.88	13.08	13.22	13.47	13.38	13.64	13.48	13.26	13.20	13.10	13.23
1927–28	11.71	9.97	10.51	10.63	10.54	10.55	10.60	10.24	10.19	10.29	10.70	11.01	10.58
1928–29	10.86	10.39	10.59	10.60	10.89	11.23	11.61	12.06	12.37	12.30	12.15	11.88	11.28
1929–30	11.17	10.85	11.05	11.07	11.18	11.04	11.16	11.19	10.95	10.97	10.98	10.91	11.08
1930–31	10.47	11.31	12.14	12.17	12.19	11.33	11.21	10.92	10.66	10.59	10.54	9.97	11.34
1931–32	9.30	9.05	8.88	8.57	8.68	8.71	8.60	8.45	8.69	8.74	8.48	7.60	8.73
1932–33	6.95	6.82	6.80	6.54	6.49	6.14	6.03	5.91	5.89	6.12	6.37	6.43	6.49
1933–34	6.99	7.53	7.53	7.54	7.69	7.69							
ALFALFA													
1924–25	13.19	13.84	13.59	12.85	13.91	13.40	14.50	14.78	14.44	14.08	14.34	12.83	13.81
1925–26	13.02	13.00	12.91	13.41	13.74	14.14	13.90	14.24	13.50	13.53	13.17	13.33	13.05
1926–27	12.94	13.15	13.13	13.29	13.79	13.57	13.83	14.21	14.38	13.85	13.59	13.03	13.58
1927–28	11.73	11.47	11.34	11.52	11.75	12.02	12.09	11.84	12.46	12.56	12.90	12.42	11.94
1928–29	11.98	11.82	12.20	12.82	13.29	13.90	14.54	15.34	16.07	16.20	15.50	14.50	13.73
1929–30	13.12	13.17	13.50	13.84	14.00	14.41	14.66	14.45	13.90	13.42	12.87	12.14	13.73
1930–31	11.44	12.16	12.85	12.97	12.94	12.52	12.21	11.74	11.29	11.01	10.87	10.24	12.13
1931–32	9.80	9.86	9.67	9.58	9.94	10.31	10.14	10.25	10.84	10.79	9.97	8.63	10.05
1932–33	7.38	7.15	7.27	7.05	7.01	6.77	6.70	6.39	6.34	6.46	6.71	6.69	6.99
1933–34	7.48	7.90	8.04	8.26	8.26	8.36							
CLOVER													
1924–25	15.45	14.00	13.75	13.65	13.64	13.45	13.25	13.30	12.52	12.41	12.67	12.26	13.50
1925–26	13.03	13.67	14.06	14.09	14.74	15.28	14.79	14.82	14.79	14.88	15.13	15.07	14.48
1926–27	14.40	14.25	14.60	14.71	14.76	15.24	15.71	16.16	15.64	15.51	15.21	14.65	15.07
1927–28	13.11	12.16	11.78	11.91	11.86	11.91	12.24	11.96	12.02	12.23	12.51	12.63	12.20
1928–29	12.52	12.25	12.50	12.58	13.01	13.05	13.41	13.59	13.93	13.43	13.24	12.92	12.97
1929–30	11.60	11.61	11.82	11.77	11.82	11.97	12.24	12.24	12.31	12.27	12.19	12.25	11.98
1930–31	11.71	13.20	14.62	14.62	14.62	13.52	13.53	12.78	12.45	12.57	12.21	11.28	13.38
1931–32	10.30	10.15	9.81	9.65	9.65	9.70	9.72	9.14	9.46	9.49	9.06	8.38	9.65
1932–33	8.04	8.03	7.97	7.58	7.53	7.62	7.50	7.27	7.43	7.69	7.83	7.77	7.74
1933–34	8.17	8.78	9.04	9.03	9.10	9.13							
TIMOTHY													
1924–25	16.74	15.24	14.47	14.54	14.00	14.37	14.29	14.24	13.31	13.39	13.38	13.05	14.42
1925–26	13.89	14.06	14.98	15.11	15.38	15.87	15.82	15.79	15.59	15.81	16.31	16.64	15.35
1926–27	16.01	15.52	15.32	15.49	15.62	15.81	14.58	15.82	15.39	15.05	15.14	14.97	15.44
1927–28	13.29	12.03	11.70	11.58	11.67	11.31	11.34	11.03	11.14	11.17	11.75	11.82	11.71
1928–29	11.68	11.70	11.77	11.86	12.18	12.35	12.45	12.99	13.01	12.86	12.64	12.57	12.25
1929–30	11.91	11.61	11.60	11.67	11.70	11.57	11.55	11.55	11.57	11.79	12.04	12.29	11.72
1930–31	12.32	13.53	14.76	14.82	14.87	14.58	14.50	14.36	14.16	14.09	13.76	12.84	14.11
1931–32	10.77	10.07	9.79	9.56	9.34	9.14	8.86	8.26	8.36	8.14	8.23	7.73	9.17
1932–33	7.34	7.34	7.20	7.19	7.04	7.15	6.95	6.91	6.94	7.18	7.39	7.57	7.19
1933–34	7.82	8.39	8.50	8.60	8.72	8.52							
PRAIRIE													
1924–25	8.35	8.60	8.49	8.25	8.25	8.62	9.14	9.08	9.05	9.11	9.27	8.55	8.70
1925–26	8.93	8.55	9.24	9.41	9.39	9.78	9.73	9.53	9.48	9.08	9.54	9.59	9.34
1926–27	9.63	10.55	10.52	10.78	10.76	10.98	11.28	11.76	11.50	10.70	11.51	10.77	10.88
1927–28	9.15	8.65	7.98	7.67	7.47	7.55	7.41	6.98	6.79	6.96	7.32	7.59	7.72
1928–29	7.80	7.34	7.62	7.71	7.72	7.88	8.01	8.33	8.99	8.81	8.76	8.77	8.04
1929–30	8.21	7.96	8.13	7.97	8.11	8.18	8.30	8.41	8.11	8.12	7.96	7.78	8.14
1930–31	7.12	7.63	7.89	7.66	7.48	7.31	7.23	6.82	6.51	6.44	6.30	6.34	7.26
1931–32	6.52	6.64	6.68	6.53	6.67	6.56	6.48	6.70	7.30	7.47	7.15	6.02	6.75
1932–33	5.14	4.71	4.57	4.45	4.36	4.06	4.10	4.01	3.97	4.07	4.31	4.30	4.49
1933–34	5.18	5.54	5.49	5.46	5.35	5.34							

Bureau of Agricultural Economics. Based on returns from special-price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; yearly price obtained by weighting monthly prices by monthly marketings. For previous data on alfalfa, clover, timothy, and prairie hay see 1930 or earlier Yearbooks.

TABLE 290.—*Hay, tame, by kinds: Production, United States, 1919–33*

Year	Alfalfa	Sweet-clover	Lespedeza (Japan clover)	Annual legumes	Clover and timothy	Grains cut green for hay	Miscellaneous tame hay [1]	All tame	Sorgo for forage and hay [2]
	1,000 short tons	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*
1919	19,380			2,078	[3] 42,734	5,362	7,035	76,589	4,294
1920	20,458			2,149	[3] 41,319	5,150	7,088	76,164	5,170
1921	20,071			2,235	[3] 36,101	5,441	7,187	71,035	3,970
1922	20,110			2,604	[3] 46,253	4,252	7,571	80,790	3,540
1923	21,630			2,738	[3] 38,522	4,159	8,237	75,286	4,060
1924	21,140	999	286	2,654	44,267	3,337	7,435	80,118	3,602
1925	22,045	994	202	1,940	32,403	3,894	5,677	67,155	3,027
1926	22,140	849	334	2,819	31,181	3,983	6,172	67,478	3,133
1927	25,940	1,362	398	3,440	41,838	3,887	6,783	83,648	4,994
1928	24,214	1,349	379	3,611	33,151	3,500	6,382	72,586	3,887
1929	23,854	1,140	384	3,030	38,405	3,506	5,791	76,110	3,209
1930	22,949	851	224	2,677	27,593	4,145	5,127	63,566	2,690
1931	21,096	765	356	4,566	27,978	4,926	5,654	65,341	3,553
1932	26,207	996	352	4,874	26,235	5,204	6,331	70,199	3,845
1933 [4]	24,899	690	527	3,974	25,159	4,531	6,072	65,852	4,800

[1] Includes millet, Sudan grass, red top, Bermudas, Johnson, and orchard grass, mixed cowpea and sorghum hay, mixed hay from old meadows, and vetch hay on the Pacific coast.
[2] Not included in "All tame hay."
[3] Includes sweetclover and Lespedeza.
[4] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.
Revised, 1919–28. See introductory text.

TABLE 291.—*Hay, Alfalfa No. 1: Average price per ton at Kansas City, 1924–25 to 1933–34*

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924–25	18.90	19.80	20.40	21.10	21.00	22.80	22.70	19.25	19.60	18.90	19.20	17.50	20.10
1925–26	18.20	19.40	20.10	21.40	21.25	21.40	22.20	21.60	22.80	24.60	23.25	17.25	21.10
1926–27	17.80	18.25	19.40	19.90	20.70	20.40	20.00	19.25	18.75	19.00	19.00	15.00	19.00
1927–28	14.75	15.25	18.00	19.50	20.00	22.25	21.50	22.50	24.25	26.00	26.00	20.00	20.80
1928–29	20.00	20.50	21.00	23.25	25.00	26.00	28.25	28.75	29.75	29.25	26.00	19.50	24.80
1929–30	19.00	20.50	23.50	24.25	24.75	22.75	23.75	23.00	22.00	23.00	21.75	16.75	22.10
1930–31	17.50	21.50	22.00	22.25	23.25	22.50	21.50	19.50	19.75	19.25	17.25	12.75	19.90
1931–32	13.25	13.25	13.00	13.00	13.00	14.25	14.00	14.50	16.00	16.00	13.50	9.75	13.62
1932–33	9.75	9.75	9.75	10.50	10.50	11.00	10.50	10.25	10.75	11.00	11.20	9.65	10.38
1933–34	9.90	11.45	11.75	11.75	11.75	12.70							

Bureau of Agricultural Economics. Compiled from reports made directly to the Bureau by its representative in the market.

TABLE 292.—*Alfalfa meal: Production in the United States, 1927–28 to 1933–34, and price per ton of No. 1 medium, bagged, in car lots, Kansas City, 1924–25 to 1933–34*

Year	Production												
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Total or average
	Short tons	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*
1927–28	19, 385	14, 674	19, 738	28, 128	36, 236	37, 760	35, 739	40, 005	30, 236	25, 551	17, 865	16, 001	321, 318
1928–29	26, 492	26, 707	38, 716	42, 925	40, 427	33, 132	31, 908	51, 250	36, 993	27, 893	14, 633	9, 866	380, 942
1929–30	19, 075	24, 408	28, 884	32, 252	40, 927	27, 785	42, 077	44, 857	41, 847	22, 871	14, 634	11, 259	350, 876
1930–31	31, 165	24, 680	30, 570	41, 974	25, 959	28, 921	26, 987	34, 375	16, 564	14, 217	13, 383	12, 955	301, 750
1931–32	23, 546	15, 096	17, 404	18, 933	16, 944	21, 164	19, 515	12, 606	12, 521	10, 516	8, 747	10, 045	187, 037
1932–33	14, 803	17, 008	15, 446	19, 145	18, 117	12, 388	12, 933	10, 963	10, 119	10, 067	12, 245	15, 969	169, 203
1933–34	25, 350	21, 762	18, 127	18, 660	21, 258	15, 619	[1] 15,224	------	------	------	------	------	-------
	Price												
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924–25	21. 75	22. 00	22. 60	23. 25	23. 10	22. 50	23. 90	24. 20	22. 50	22. 25	22. 00	22. 70	22. 73
1925–26	22. 90	23. 00	24. 00	24. 25	24. 40	24. 10	24. 40	24. 80	24. 00	23. 10	23. 90	25. 40	24. 02
1926–27	23. 90	23. 00	22. 80	22. 25	22. 40	22. 90	22. 30	22. 00	21. 75	21. 40	21. 00	22. 20	22. 32
1927–28	21. 60	21. 75	22. 40	23. 40	23. 10	22. 75	23. 30	24. 40	26. 25	29. 40	33. 50	34. 25	25. 51
1928–29	31. 70	27. 60	25. 60	26. 00	26. 60	26. 60	28. 60	29. 75	29. 90	28. 50	28. 00	27. 00	27. 99
1929–30	25. 10	23. 50	25. 00	27. 30	27. 50	26. 80	27. 40	27. 40	25. 50	23. 60	25. 00	23. 80	25. 66
1930–31	22. 00	22. 70	24. 70	26. 60	25. 60	25. 00	24. 20	23. 60	21. 25	20. 40	21. 00	19. 60	23. 05
1931–32	18. 10	17. 90	16. 80	17. 60	17. 20	19. 00	18. 60	18. 90	17. 60	17. 00	17. 00	17. 00	17. 72
1932–33	15. 40	15. 50	15. 90	16. 00	15. 60	15. 40	15. 25	15. 10	15. 00	15. 25	15. 60	16. 20	15. 52
1933–34	16. 00	17. 30	18. 20	19. 40	19. 10	19. 00	19. 00	------	------	------	------	------	-------

[1] Preliminary.

Bureau of Agricultural Economics.

Production data from reports of meal manufacturers to the Bureau through its market news service; prices are from reports of Bureau representatives in the market and are average of bulk of sale price for 1 day each week.

TABLE 293.—*Pasture and range: Condition, 1st of month, United States, 1924–33*

Year	Pasture						Range [1]					
	May	June	July	Aug.	Sept.	Oct.	May	June	July	Aug.	Sept.	Oct.
	Pct.	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*
1924	82. 4	83. 2	87. 2	82. 0	76. 6	78. 6	91	84	81	79	75	74
1925	82. 2	75. 7	73. 0	69. 5	67. 4	72. 9	84	86	86	83	87	92
1926	74. 6	77. 0	77. 0	69. 9	78. 2	83. 7	94	95	92	87	84	83
1927	87. 0	88. 3	92. 8	86. 9	84. 2	80. 1	89	89	94	94	95	94
1928	71. 3	78. 6	84. 4	85. 6	83. 3	77. 7	85	90	91	90	87	85
1929	86. 9	87. 2	87. 5	79. 7	67. 1	70. 2	84	87	88	86	83	84
1930	77. 3	80. 4	74. 6	56. 4	47. 7	56. 1	89	92	88	82	81	82
1931	78. 8	78. 5	73. 0	63. 7	63. 0	63. 5	84	82	79	73	73	71
1932	74. 1	77. 6	79. 0	71. 1	67. 6	67. 1	81	89	92	88	84	84
1933	71. 5	81. 5	60. 5	55. 6	59. 5	65. 6	76	82	78	74	75	76

[1] Western division and includes range areas of North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, and Texas.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 294.—*Pasture:* [1] *Condition, 1st of month, by States, average, 1921–30, and 1933*

State and division	May		June		July		August		September		October	
	Average, 1921–30	1933	Average, 1921–30	1933	Average, 1921–30	1933	Average, 1921–30	1933	Average, 1921–30	1933	Average, 1921–30	1933
	Pct.	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*
Maine	86	84	88	78	88	77	85	75	81	75	78	80
New Hampshire	86	81	89	81	87	76	88	69	84	73	80	77
Vermont	85	86	89	86	92	73	92	60	88	66	85	81
Massachusetts	83	86	87	84	85	79	82	65	81	75	79	85
Rhode Island	84	81	88	89	86	92	82	79	79	73	76	83
Connecticut	82	79	87	81	86	84	80	59	78	75	79	83
New York	80	78	84	85	85	67	81	44	76	63	76	80
New Jersey	81	80	84	89	77	84	74	73	78	83	77	88
Pennsylvania	80	75	85	88	82	78	77	64	75	70	74	81
North Atlantic	81.0	78.3	85.0	85.7	84.5	73.7	80.5	56.4	77.2	68.2	76.4	81.1
Ohio	79	75	83	89	81	66	77	50	77	52	78	75
Indiana	80	75	84	88	82	55	73	44	75	48	79	60
Illinois	82	76	82	88	82	62	74	49	75	45	77	45
Michigan	72	71	84	90	82	73	72	52	66	39	73	54
Wisconsin	79	70	84	86	84	72	78	58	71	43	76	53
Minnesota	78	61	80	80	82	58	74	45	68	38	73	50
Iowa	84	75	82	86	85	57	78	57	80	60	84	66
Missouri	84	75	84	88	86	56	77	48	77	55	79	62
North Dakota	75	59	79	77	83	52	76	40	69	30	70	32
South Dakota	79	65	79	84	80	27	73	29	68	31	71	37
Nebraska	84	74	87	83	88	45	80	61	76	64	78	71
Kansas	83	62	86	77	87	41	81	41	76	57	81	68
North Central	80.9	71.1	83.2	85.1	83.8	55.3	76.7	49.2	74.5	50.0	77.8	59.3
Delaware	80	76	81	87	71	75	68	70	72	80	68	83
Maryland	78	72	80	81	73	73	68	70	70	78	70	83
Virginia	80	75	81	91	78	76	74	73	76	88	72	73
West Virginia	80	72	83	88	82	80	81	74	81	82	78	78
North Carolina	83	75	82	78	83	58	80	65	79	79	76	71
South Carolina	79	66	76	61	78	50	77	68	72	66	69	61
Georgia	81	76	81	72	80	60	81	74	73	66	70	61
Florida	80	83	79	66	86	66	89	80	88	79	86	67
South Atlantic	80.2	74.0	81.2	81.4	79.7	69.2	77.8	71.9	76.8	79.0	73.8	71.7
Kentucky	82	77	84	90	84	68	77	69	76	79	77	84
Tennessee	82	79	85	88	82	60	75	69	75	77	74	75
Alabama	81	75	82	69	79	55	76	79	72	74	68	63
Mississippi	82	76	83	77	80	53	75	79	73	75	70	67
Arkansas	82	80	86	87	82	61	73	55	67	74	70	76
Louisiana	82	76	85	78	83	65	77	81	74	85	75	74
Oklahoma	82	68	86	73	86	41	76	39	67	61	70	64
Texas	83	72	85	74	84	56	74	52	65	65	70	69
South Central	82.2	73.5	84.7	77.4	83.5	55.6	75.0	57.7	68.5	69.1	71.2	70.3
Montana	84	71	87	92	87	75	81	55	77	51	77	66
Idaho	87	70	92	78	89	85	83	74	80	69	80	70
Wyoming	89	74	95	88	96	86	91	68	89	62	88	68
Colorado	86	58	88	74	87	72	83	66	86	66	82	73
New Mexico	73	59	79	49	76	55	74	61	80	69	77	77
Arizona	83	79	81	82	78	75	80	76	86	74	85	79
Utah	87	68	92	78	86	75	82	66	82	64	81	52
Nevada	86	80	90	73	88	79	86	74	83	70	83	64
Washington	84	57	87	68	84	73	72	65	69	61	70	68
Oregon	90	55	93	70	90	78	83	73	76	62	76	71
California	85	62	84	64	81	65	80	64	78	62	77	60
Western	84.6	64.5	86.8	72.8	84.9	71.4	81.0	64.7	80.0	62.4	78.7	67.1
United States	81.7	71.5	84.0	81.5	83.7	60.5	77.4	55.6	74.6	59.5	76.2	65.6

[1] For range States, condition given as reported. Probably relates largely to farm pasture, i.e., range not included.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 295.—*Hops: Acreage, production, price per pound received by producers Dec. 1, foreign trade, and consumption, United States, 1910–11 to 1933–34*

Year beginning July	Acreage harvested	Average yield per acre	Production	Price Dec. 1	Foreign trade, year beginning July: Imports [1]	Domestic exports [1]	Net exports [1]	Consumption by breweries [2]
	Acres	*Pounds*	*1,000 pounds*	*Cents*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1910–11					8, 558	13, 105	4, 565	45, 069
1911–12					2, 991	12, 191	9, 235	42, 437
1912–13					8, 494	17, 591	9, 133	44, 238
1913–14					5, 382	24, 263	18, 911	43, 988
1914–15					11, 651	16, 210	4, 576	38, 839
1915–16	44, 653	1, 187	52, 986	11. 7	676	22, 410	21, 869	37, 452
1916–17	43, 900	1, 152	50, 595	12. 0	237	4, 875	4, 664	41, 949
1917–18	29, 900	983	29, 388	33. 3	121	3, 495	3, 411	33, 481
1918–19	25, 900	829	21, 481	19. 3	(3)	7, 467	7, 472	13, 925
1919–20	22, 000	1, 287	28, 320	77. 4	2, 696	30, 780	28, 187	6, 441
1920–21	27, 000	1, 243	33, 555	35. 7	4, 808	22, 206	18, 226	5, 989
1921–22	27, 000	1, 087	29, 340	24. 1	893	19, 522	19, 116	4, 453
1922–23	23, 400	1, 186	27, 744	8. 6	1, 295	13, 497	12, 401	4, 556
1923–24	18, 440	1, 071	19, 751	18. 8	761	20, 461	19, 832	3, 815
1924–25	20, 350	1, 360	27, 670	10. 3	439	16, 122	15, 737	[4] 3, 256
1925–26	20, 350	1, 404	28, 573	21. 8	581	14, 998	14, 592	[4] 3, 426
1926–27	20, 800	1, 516	31, 522	23. 1	470	13, 369	12, 936	[4] 3, 149
1927–28	24, 600	1, 246	30, 658	22. 9	753	11, 812	11, 087	[4] 3, 071
1928–29	26, 200	1, 257	32, 944	19. 3	649	8, 836	8, 198	2, 735
1929–30	24, 400	1, 360	33, 195	11. 4	926	6, 793	5, 901	2, 627
1930–31	19, 500	1, 202	23, 447	14. 8	1, 026	5, 593	4, 583	2, 197
1931–32	21, 400	1, 234	26, 410	13. 8	1, 253	3, 817	2, 564	1, 841
1932–33	22, 000	1, 094	24, 058	[5] 17. 5	4, 572	2, 431	[6] 2, 141	
1933–34 [7]	26, 500	1, 375	36, 440	[5] 30. 3				

[1] Compiled from Monthly Summary of Foreign Commerce of the United States, June issues, 1910–26; January and June issues, 1927–33, and official records of the Bureau of Foreign and Domestic Commerce.
[2] Figures 1919 to date represent hops used to make cereal beverages.
[3] Not over 500 pounds.
[4] Not including 57,936 pounds in 1924, 71,508 pounds in 1925, 960 pounds in 1926, and 6,294 pounds in 1927 used in the manufacture of distilled spirits.
[5] Average price, crop marketing season.
[6] Net imports.
[7] Preliminary.

Bureau of Agricultural Economics; compiled from reports of the Division of Crop and Livestock Estimates, Bureau of Foreign and Domestic Commerce, records of the Bureau of Internal Revenue, 1910–11 to 1925–26; annual reports of the Commissioner of Prohibition, 1926–27 to 1929–30; and Commissioner of Industrial Alcohol, 1930–31 to date.

TABLE 296.—*Hops: Acreage, yield per acre, and production in specified countries, 1931–32 to 1933–34*

Country	Acreage 1931–32	Acreage 1932–33	Acreage 1933–34 [1]	Yield per acre 1931–32	Yield per acre 1932–33	Yield per acre 1933–34 [1]	Production 1931–32	Production 1932–33	Production 1933–34 [1]
NORTH AMERICA	*Acres*	*Acres*	*Acres*	*Pounds*	*Pounds*	*Pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Canada [2]	925	690		1, 330	1, 146		1, 230	791	
United States [3]	21, 400	22, 000	26, 500	1, 234	1, 094	1, 375	26, 410	24, 058	36, 440
EUROPE									
England and Wales	[4] 19, 528	[4] 16, 531	[4] 16, 895	[5] 969	[5] 1, 274	[5] 1, 432	18, 928	21, 056	24, 192
Belgium	2, 051	1, 000	2, 000	560	1, 531	883	1, 149	1, 531	1, 765
France	5, 893	4, 361	4, 581	200	392	796	1, 178	1, 711	3, 645
Germany	25, 325	19, 800	23, 638	677	552	634	17, 152	10, 928	14, 977
Austria	126	111		349			44		
Czechoslovakia	30, 194	24, 353	26, 571	900	681	486	27, 177	16, 583	12, 914
Hungary	566	243	358	484	580		274	141	
Yugoslavia	[6] 5, 683	[6] 4, 447	[6] 4, 408	640	694		[6] 3, 636	[6] 3, 085	
Rumania	210	72		510	458		107	33	
Poland	[6] 6, 177	5, 000	9, 000	642	687		[6] 3, 967	3, 436	
Total European countries reporting acreage and production, all years	82, 991	66, 045	73, 685	790	784	780	65, 584	51, 809	57, 493

[1] Preliminary.
[2] British Columbia.
[3] Principal producing States.
[4] These figures include the acreage left unpicked, which was estimated at 1,600 acres in 1931, 200 acres in 1932, and 20 acres in 1933.
[5] Yield based on acreage picked.
[6] Unofficial estimate.

TABLE 296.—*Hops: Acreage, yield per acre, and production in specified countries, 1931–32 to 1933–34*—Continued

Country	Acreage			Yield per acre			Production		
	1931–32	1932–33	1933–34 [1]	1931–32	1932–33	1933–34 [1]	1931–32	1932–33	1933–34 [1]
OCEANIA	*Acres*	*Acres*	*Acres*	*Pounds*	*Pounds*	*Pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Australia	1,036			1,747			1,810		
New Zealand	466	[6] 650		1,288	1,292		[6] 600	[6] 840	
Total countries reporting acreage and production, all years	104,391	88,045	100,185	881	862	938	91,994	75,867	93,933
Estimated world total, excluding Russia [7]	119,580	100,000	117,000				103,662	86,000	104,000

[1] Preliminary.
[6] Unofficial estimate.
[7] Exclusive of acreage and production in minor producing countries for which no data are available.

Bureau of Agricultural Economics; official sources and International Institute of Agriculture except as otherwise stated.
Acreage and production figures are for the harvesting season 1931 to 1933 in the Northern Hemisphere and 1931–32 to 1933–34 in the Southern Hemisphere.

TABLE 297.—*Hops: International trade, average 1925–29, annual 1929–32*

Country	Calendar year									
	Average, 1925–29		1929		1930		1931		1932 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Czechoslovakia	15,936	1,228	18,711	374	19,890	11	23,271	0	12,315	0
United States	12,654	612	7,677	765	7,640	1,099	3,797	1,077	3,007	1,300
Yugoslavia	9,427	231	7,269	218	5,966	167	3,476	185	3,643	54
France	5,601	4,458	3,437	4,601	2,670	4,516	352	8,409	84	3,540
Poland	3,552	447	5,708	636	4,569	475	2,573	148	4,133	11
New Zealand	387	6	266	1	204	1	90	0	200	1
Russia	[2] 346	[2] 126	[2] 161	0	9	7	13	0	46	0
Australia [2]	269	208	131	121	152	124	1,001	35		
Total	48,172	7,316	43,360	6,716	41,100	6,400	34,573	9,854	23,428	4,906
PRINCIPAL IMPORTING COUNTRIES										
Germany	2,964	11,408	5,080	8,011	5,721	6,190	9,743	3,879	4,657	3,827
United Kingdom	4,672	7,855	1,478	6,967	2,498	4,950	2,507	5,636	2,212	1,693
Irish Free State	0	5,997	0	5,624	0	5,793	0	6,392	0	4,558
Belgium	2,173	5,300	449	6,730	370	7,207	266	8,701	382	4,953
Austria	117	3,082	68	3,382	37	3,074	20	2,533	19	1,502
Canada	387	2,574	296	2,823	216	3,386	125	889	15	751
Netherlands	89	1,273	28	1,672	24	1,479	27	1,237	36	677
Brazil	0	1,101	0	1,238	0	913	0	706	0	642
Switzerland	0	1,097	0	1,418	0	1,263	0	1,234	0	975
Sweden	1	1,081	0	1,114	1	1,281	0	1,170	1	1,080
Argentina	0	1,051	0	831	0	1,224	0	653	0	46
Japan	0	908	0	823	0	1,158	0	696	0	944
Denmark	1	814	1	877	1	1,212	2	1,155	2	696
Italy	8	672	1	442	5	586	8	315	2	170
Union of South Africa	0	530	0	402	0	513	0	305	0	252
Norway	0	334	0	360	0	261	0	305	0	251
Hungary	121	310	69	198	85	135	39	0	56	42
British India	0	166	0	172	0	114	0	107	0	133
Total	10,533	45,553	7,470	43,084	8,958	40,739	12,737	35,913	7,382	23,192

[1] Preliminary.
[2] International Yearbook of Agricultural Statistics.

Bureau of Agricultural Economics; official sources except where otherwise noted.
Lupulin and hopfenmehl (hop meal) are not included when given separately.

TABLE 298.—*Peanuts:*[1] *Acreage, yield, production, and weighted average price per pound received by producers, by States, averages, and annual 1932 and 1933*

State	Nuts gathered								
	Acreage			Yield per acre			Production		
	Average, 1926–30	1932	1933[2]	Average, 1921–30	1932	1933[2]	Average, 1926–30	1932	1933[2]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Pounds*	*Pounds*	*Pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Virginia	147	144	117	858	1,070	950	131,549	154,080	111,150
North Carolina	209	271	208	986	1,020	950	206,549	276,420	197,600
South Carolina	10	16	14	704	640	680	7,315	10,240	9,520
Georgia	318	484	431	596	475	590	198,285	229,900	254,290
Florida	46	63	54	626	415	520	28,108	26,145	28,080
Tennessee	17	14	10	809	750	780	13,742	10,500	7,800
Alabama	204	328	262	559	520	565	121,030	170,560	148,030
Mississippi	11	29	27	614	660	585	6,689	19,140	15,795
Arkansas	11	26	25	628	525	530	7,272	13,650	13,250
Louisiana	11	15	15	511	425	650	5,719	6,375	9,750
Oklahoma	34	37	31	674	590	700	21,250	21,830	21,700
Texas	120	180	167	550	550	620	63,492	99,000	103,540
United States	1,138	1,607	1,361	696.8	645.8	676.3	811,001	1,037,840	920,505

State	Total for all purposes						Price for crop of—	
	Acreage[3]			Production[3]				
	Average, 1926–30	1932	1933[2]	Average, 1926–30	1932	1933[2]	1932	1933[4]
	1,000 acres	*1,000 acres*	*1,000 acres*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*Cents*	*Cents*
Virginia	149	145	118	133,488	155,150	112,100	1.4	2.6
North Carolina	224	294	215	219,786	299,880	204,250	1.4	2.7
South Carolina	14	23	18	10,149	14,720	12,240	2.7	3.4
Georgia	560	838	773	347,672	398,050	456,070	1.5	2.6
Florida	207	273	252	122,710	113,295	131,040	1.5	2.4
Tennessee	18	14	10	14,092	10,500	7,800	1.6	2.4
Alabama	335	466	377	198,612	242,320	213,005	1.3	2.5
Mississippi	15	36	33	8,962	23,760	19,305	3.3	3.7
Arkansas	26	37	35	16,874	19,425	18,550	3.2	3.4
Louisiana	15	22	20	7,749	9,350	13,000	3.8	4.3
Oklahoma	46	48	35	28,569	28,320	24,500	1.6	2.6
Texas	170	229	207	88,690	125,950	128,340	1.7	2.5
United States	1,779	2,425	2,093	1,197,352	1,440,720	1,340,200	[5] 1.53	[5] 2.62

[1] Peanuts planted in corn are included, reduced to their equivalent solid acres.
[2] Preliminary.
[3] Including peanuts grazed or hogged off as well as those gathered.
[4] Average price for 4 months.
[5] Average of State prices for gathered nuts weighted by total equivalent production for all purposes.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 299.—*Peanuts: International trade, average 1925–29, annual 1930–32*

Country	Calendar year: Average, 1925–29, Exports	Average, 1925–29, Imports	1930, Exports	1930, Imports	1931, Exports	1931, Imports	1932[1], Exports	1932[1], Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
British India	1,320,173	0	1,322,041	0	1,590,516	0	1,058,382	0
Senegal	951,057	66	1,120,411	[2] 4	[2] 1,005,850	[2] 4	--------	--------
China	408,762	42,314	582,081	16,968	723,145	1,142	562,601	183
Nigeria	266,702	0	327,871	0	357,815	0	421,398	0
French Possessions—India	[3] 251,847	0	--------	0	--------	--------		
Gambia	134,328	0	167,465	0	149,657	0	--------	0
Dutch East Indies	61,251	735	45,242	749	39,008	667	[4] 45,515	[4] 0
Mozambique	54,487	21	54,897	81	58,278	262	73,595	369
Tanganyika	25,728	0	38,826	0	6,877	0	35,556	0
Anglo-Egyptian Sudan	12,732	0	10,659	0	6,230	0	2,886	0
French Guiana	10,722	2	[2] 4,824	0	[2] 3,067	0		0
Spain	3,252	0	[2] 2,834	0	[2] 4,335	0	--------	0
Brazil	439	0	36	0	171	0	220	0
Total	3,501,480	43,138	3,677,187	17,802	3,944,949	2,075	2,200,153	552
PRINCIPAL IMPORTING COUNTRIES								
France	12,863	1,619,507	5,088	1,957,755	5,300	1,927,161	3,840	1,992,455
Germany	0	1,311,186	0	2,023,087	0	1,839,597	0	774,878
United Kingdom	0	286,186	0	346,993	0	426,738	0	214,426
Italy	99	252,338	111	135,327	41	269,198	24	140,027
Netherlands	3,278	203,972	2,890	241,825	2,937	286,930	1,811	170,837
United States	4,569	78,563	2,960	10,902	1,842	13,620	7,107	561
Belgium	244	61,350	140	52,435	547	59,973	1,049	48,252
Denmark	0	40,102	0	69,429	0	92,857	0	53,705
British Malaya	12,361	30,390	3,573	21,388	2,238	17,434	3,376	18,384
Canada	0	29,783	0	29,876	0	30,141	0	22,860
Japan	885	26,603	150	36,471	150	55,761	17	31,590
Sweden	0	16,095	0	14,940	0	17,830	0	2,536
Algeria	313	10,025	135	[2] 10,954	129	[2] 17,224	38	--------
Egypt	2,599	6,894	1,648	7,446	1,146	5,068	1,202	403
Tunis	0	4,769	0	4,743	0	6,092	0	4,607
Union of South Africa	401	4,524	904	3,334	337	10,371	40	8,989
Argentina	112	4,029	22	6,982	55	13,910	100	222
Australia [2]	0	[3] 3,442	0	505	0	23	0	--------
Philippine Islands	0	3,051	1,148	3,661	665	5,364	17	4,300
Poland	1	1,847	0	950	0	947	0	524
Yugoslavia	0	1,578	0	3,570	0	196	0	99
Total	37,725	3,996,234	18,769	4,982,573	15,387	5,096,435	18,621	3,489,655

[1] Preliminary.
[2] International Yearbook of Agricultural Statistics.
[3] 4-year average.
[4] Java and Madura only.

Bureau of Agricultural Economics; official sources except where otherwise noted.
Includes shelled and unshelled, assuming the peanuts to be unshelled unless otherwise stated. When shelled nuts were reported they have been reduced to terms of unshelled at the ratio of 3 pounds unshelled to 2 pounds of shelled.

TABLE 300.—*Peanuts: Acreage, yield per acre, production, and weighted average price per pound received by producers, United States, 1919–33*

Year	Peanuts gathered				Peanuts, all		
	Acreage	Yield per acre	Total quantity gathered	Price [1]	Total acreage [2]	Yield per acre	Total production [3]
	1,000 acres	*Pounds*	*1,000 pounds*	*Cents*	*1,000 acres*	*Pounds*	*1,000 pounds*
1919	1,132	691.9	783,273	9.33			
1920	1,181	712.5	841,474	5.26			
1921	1,214	683.1	829,307	3.99			
1922	1,005	630.0	633,114	4.68			
1923	896	722.9	647,762	6.78			
1924	1,187	627.7	745,059	[4] 5.68	1,830	615.3	1,125,932
1925	958	729.1	698,475	[4] 4.56	1,563	666.4	1,041,514
1926	843	749.5	631,825	[4] 4.97	1,315	669.1	879,923
1927	1,142	757.0	864,549	[4] 5.04	1,786	735.0	1,312,643
1928	1,211	706.1	855,096	[4] 4.90	1,930	661.2	1,276,078
1929	1,360	703.3	956,448	[4] 3.83	2,001	670.4	1,341,416
1930	1,133	659.4	747,085	[4] 3.54	1,862	632.0	1,176,700
1931	1,419	773.7	1,097,930	[4] 2.09	2,145	724.4	1,553,840
1932	1,607	645.8	1,037,840	[4] 1.53	2,425	594.1	1,440,720
1933 [5]	1,361	676.3	920,505	[4] 2.62	2,093	640.3	1,340,200

[1] From 1919 to 1923, Nov. 15 price.
[2] Peanuts planted in corn are included, reduced to their equivalent solid acres.
[3] Including peanuts grazed or hogged off as well as those gathered.
[4] Average of State prices weighted by total production.
[5] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.
See 1930 Yearbook, p. 813, for data for earlier years.

TABLE 301.—*Peanuts: Average price per pound, in the shell, received by producers, United States, 1924–25 to 1933–34*

Year	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	6.4	6.4	6.3	5.6	5.4	5.5	5.9	5.7	6.2	6.2	5.4	5.2	5.9
1925–26	5.7	4.7	5.1	4.4	4.5	4.7	4.6	5.1	5.0	4.7	5.3	5.3	4.7
1926–27	5.1	4.9	4.6	4.7	4.9	5.4	5.6	5.7	5.9	6.6	6.4	6.4	5.1
1927–28	6.0	4.9	4.6	5.2	5.4	5.4	5.4	5.5	5.7	5.6	5.5	5.5	5.2
1928–29	5.0	4.6	4.8	5.1	5.0	5.1	5.1	5.2	5.0	5.1	4.9	4.7	5.0
1929–30	4.6	4.4	4.0	3.8	3.7	3.5	3.5	3.5	3.7	3.6	3.7	3.8	3.8
1930–31	3.9	4.2	3.8	3.2	3.2	3.6	3.7	3.9	4.1	3.9	3.8	3.6	3.6
1931–32	3.1	2.3	2.2	2.0	2.0	1.9	2.0	1.9	1.7	1.6	1.4	1.7	2.0
1932–33	2.0	1.6	1.6	1.2	1.3	1.3	1.5	1.5	2.1	2.3	2.5	2.6	1.6
1933–34	2.5	2.5	2.7	2.6									

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; yearly price obtained by weighting monthly prices by estimated monthly marketings. For previous data see 1930 or earlier Yearbooks.

TABLE 302.—*Peanuts: Average price per pound to growers, f.o.b. country shipping point basis, by months, 1924–25 to 1933–34*

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
VIRGINIA-TYPE BUNCH												
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924–25	6⅜	6⅝	5⅜	5⅞	6½	6½	6⅜	6¼	6⅛	5¾	5½	4⅞
1925–26	4⅜	4	3¾	4⅛	4½	4⅜	4⅜	4⅜	5	5¼	5⅛	4¾
1926–27	4¾	4	4	4½	4¾	4⅞	4⅞	4¾	5	5¾	5⅞	------
1927–28	4½	4¼	5⅝	5¾	5⅜	5⅛	5¼	5¼	5½	5¼	4¾	4¼
1928–29	3⅞	4¾	4⅞	5⅛	5¼	5	4½	4⅜	4⅜	4⅛	4¼	4¼
1929–30	4⅛	3¾	3⅝	3⅜	3	2⅞	2⅞	3	3⅛	3⅛	3¼	4⅛
1930–31	3⅞	3½	3	3⅜	3½	3⅝	3⅞	3⅞	4	4	3¾	3⅛
1931–32	2¼	1⅞	1¾	1½	1½	1⅝	1⅜	1¼	1¼	1¼	1⅝	1⅞
1932–33	1⅝	1⅝	1	1	1	1	1⅛	1⅝	1¾	2⅝	2½	2½
1933–34	2¼	2½	2⅝	------	------	------	------	------	------	------	------	------
SOUTHEASTERN RUNNERS												
1924–25	3.5	3.6	3.2	3.2	3.6	3.5	3.2	3.0	3.3	3.5	3.2	------
1925–26	3.0	3.0	2.9	3.3	3.8	3.8	3.5	------	------	------	------	------
1926–27	------	4.2	4.1	4.8	5.4	------	------	------	------	------	------	------
1927–28	2.8	3.0	3.6	3.7	3.5	3.6	------	------	------	------	------	------
1928–29	------	3.5	3.8	3.6	3.7	3.2	------	2.6	------	------	------	------
1929–30	2.2	2.2	2.0	2.0	2.0	------	------	------	------	------	------	------
1930–31	2.3	2.2	------	------	------	------	------	------	------	------	------	------
1931–32	1.0	1.1	1.0	.8	.8	1.0	.9	.8	.6	.8	------	------
1932–33	1.0	.8	.6	.9	.9	1.0	1.1	1.6	1.8	------	------	------
1933–34	2.1	2.1	2.1	------	------	------	------	------	------	------	------	------
SOUTHEASTERN SPANISH												
1924–25	4.4	4.4	4.4	4.4	4.6	4.4	4.2	4.0	3.8	3.8	3.6	4.0
1925–26	3.6	3.6	3.4	4.0	4.9	4.8	4.7	4.6	5.2	5.3	5.5	5.2
1926–27	4.6	5.2	5.4	5.9	6.6	6.8	6.7	6.2	5.8	5.8	4.0	3.6
1927–28	3.6	3.9	4.6	4.6	4.3	4.1	4.0	3.8	4.0	3.6	3.4	3.6
1928–29	3.6	4.3	4.4	4.4	4.2	3.8	3.6	3.6	3.5	3.2	3.2	3.4
1929–30	3.2	3.2	3.0	2.6	2.8	3.1	2.9	2.8	2.8	3.0	3.2	3.6
1930–31	3.2	3.1	2.8	3.0	3.4	3.4	3.6	3.6	3.5	3.2	2.8	1.5
1931–32	1.2	1.2	1.2	1.2	1.2	1.4	1.2	1.0	.8	.8	1.3	1.4
1932–33	1.2	1.1	.9	1.1	1.1	1.2	1.4	2.1	2.4	2.7	2.7	2.2
1933–34	2.4	2.5	2.5	------	------	------	------	------	------	------	------	------
SOUTHWESTERN SPANISH												
1924–25	4.2	4.3	4.5	4.2	4.5	4.5	------	------	------	------	------	------
1925–26	3.3	3.4	3.3	3.8	4.2	4.3	------	------	------	------	------	5.0
1926–27	4.3	4.4	4.6	5.2	5.7	5.7	5.8	------	------	------	4.0	3.3
1927–28	3.2	3.3	4.0	4.5	4.0	3.9	3.9	3.9	------	------	------	3.3
1928–29	3.3	3.3	3.5	3.7	3.6	------	------	------	3.7	------	------	3.5
1929–30	3.1	2.8	2.5	2.2	2.3	2.2	2.1	2.1	------	------	4.0	3.7
1930–31	3.3	3.1	2.5	------	3.1	3.1	------	------	------	------	2.8	1.8
1931–32	1.4	1.6	1.4	1.1	1.0	1.0	1.0	.9	.9	------	1.6	1.5
1932–33	1.0	1.0	.8	1.0	1.2	1.4	1.5	------	------	2.7	2.6	2.6
1933–34	2.4	2.3	2.3	------	------	------	------	------	------	------	------	------

Bureau of Agricultural Economics. Tabulated from peanut market-news reports.

TABLE 303.—*Peanuts: Yearly average price per pound of cleaned and shelled peanuts for prompt shipment, f.o.b. important shipping points, November 1922–October 1933* [1]

VIRGINIA-NORTH CAROLINA SECTION: VIRGINIA, NORTH CAROLINA, AND TENNESSEE [2]

Classification	1922–23	1923–24	1924–25	1925–26	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33
Cleaned Virginias:	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
Jumbos	10¼	9⅛	11	7¾	8⅜	11⅜	8¾	7½	8	3¾	3½
Fancys	7¼	7⅝	9½	6⅝	6⅞	7⅜	6⅞	5¾	6⅛	2⅞	3¼
Extras	6½	6⅞	7¾	5¾	6⅛	6⅜	6	5⅛	5¼	2⅝	3
Shelled Virginias:											
Extra large	12⅛	11	12¾	9⅜	10⅞	12	10⅞	8⅞	7⅝	4½	4
No. 1	9½	9⅞	9⅜	8½	8⅜	8	8⅛	5⅞	6⅝	3	3⅝
No. 2	7⅞	7⅝	5½	6¼	7	5⅞	5⅜	4½	5⅛	2⅜	3¼

SOUTHEASTERN SECTION: GEORGIA, ALABAMA, AND FLORIDA [3]

Classification	1922–23	1923–24	1924–25	1925–26	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33
Shelled:											
Spanish, No. 1	11⅝	11⅛	7⅞	8¼	9½	7	6¾	5¾	5¾	2⅝	3½
Spanish, No. 2	9⅝	9⅜	6¼	7	7¾	5⅞	5⅝	4¾	5	2¼	3⅛
Runners, No. 1	9⅜	8⅞	7¼	7⅝	8½	6⅝	6¼	4¾	5½	2⅜	3¼
Runners, No. 2	8⅝	7⅞	5¾	6½	7⅛	5⅝	5¼	4	4⅝	2⅛	3

SOUTHWESTERN SECTION: TEXAS AND OKLAHOMA [4]

Classification	1922–23	1923–24	1924–25	1925–26	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33
Shelled:											
Spanish, No. 1	11¾	11⅜	8⅞	8⅞	10¼	7½	7¼	6⅛	6½	3	3⅝
Spanish, No. 2	9	9⅝	7¼	7¾	8½	6¼	6¼	5⅜	5⅝	2⅝	3⅜

[1] Crop year extends from November to next October in the Virginia-North Carolina section; farther south it begins earlier.
[2] Shipping points in 1933. Virginia: Boykins, Courtland, Disputanta, Emporia, Franklin, Petersburg, Stony Creek, Suffolk, Wakefield, Walters, Waverly, and Zuni. North Carolina: Ahoskie, Edenton, Elizabethtown, Enfield, Lewiston, Plymouth, Scotland Neck, Tarboro, Williamston, and Wilmington. Tennessee: Nashville and Johnsonville.
[3] Shipping points in 1933. Georgia: Albany, Americus, Arlington, Ashburn, Bainbridge, Blakely, Cairo, Camilla, Coleman, Columbus, Cordele, Dawson, Donalsonville, Edison, Fitzgerald, Fort Gaines, Leary, Macon, Moultrie, Pelham, Shellman, Tifton, Wrens, and Valdosta. Alabama: Andalusia, Brundidge, Dothan, Elba, Enterprise, Eufaula, Headland, Ozark, Samson, and Troy. Florida: Greenwood, and Malone.
[4] Shipping points in 1933. Texas: Abilene, Carbon, De Leon, Denison, Dublin, Fort Worth, and Houston. Oklahoma: Durant and Hugo.

Bureau of Agricultural Economics; based on returns from cleaners, shellers and brokers.

TABLE 304.—*Peanut oil: Peanuts crushed and crude and virgin oil produced in the United States, 1923–24 to 1932–33*

Year	Peanuts crushed [1]					Oil produced				
	October–December	January–March	April–June	July–September	Total	October–December	January–March	April–June	July–September	Total
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1923–24	6,164	4,676	5,471	1,928	18,239	1,406	1,122	1,328	438	4,294
1924–25	17,668	24,678	16,893	9,096	68,335	3,804	5,265	4,091	1,974	15,134
1925–26	17,134	17,880	10,668	4,389	50,071	3,827	4,001	3,093	1,006	11,927
1926–27	10,576	11,143	6,321	6,966	35,006	2,544	2,446	1,400	1,600	7,990
1927–28	21,810	24,168	8,177	6,661	60,816	5,144	5,324	1,920	1,626	14,014
1928–29	14,740	19,596	10,392	11,320	56,048	3,569	4,463	2,331	2,614	12,977
1929–30	31,598	50,888	25,606	12,672	120,764	6,723	11,192	6,413	2,751	27,079
1930–31	22,744	23,940	17,950	4,996	69,630	5,139	5,214	4,061	1,134	15,548
1931–32	15,376	14,874	12,750	8,464	51,464	3,320	3,415	2,990	1,843	11,568
1932–33 [2]	19,944	13,432	20,260	11,792	65,428	4,597	3,846	4,412	2,609	15,464

[1] Quantities reported in terms of hulled have been converted to in-the-hull basis by multiplying by 1.5.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from reports of the Bureau of the Census on animal and vegetable fats and oils.

TABLE 305.—*Peanut oil: International trade, average 1925–29, annual 1929–32*

Country	Calendar year									
	Average, 1925–29		1929		1930		1931		1932 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
France	70, 810	10, 793	86, 208	13, 336	69, 791	14, 374	98, 224	6, 751	91, 108	8, 881
China	70, 538	0	41, 369	0	110, 880	0	108, 591	0	43, 206	0
Germany	58, 861	8, 040	113, 267	4, 008	86, 785	3, 378	47, 350	3, 547	17, 836	1, 458
Dutch East Indies	4, 262	1, 676	7, 011	1, 951	4, 703	2, 438	4, 796	2, 354	[2] 9, 438	[2] 49
Denmark	4, 046	1, 203	8, 781	800	9, 963	1, 846	11, 480	1, 266	9, 660	356
Total	208, 517	21, 712	256, 636	20, 095	282, 122	22, 036	270, 441	13, 918	171, 248	10, 744
PRINCIPAL IMPORTING COUNTRIES										
Netherlands	31, 567	58, 871	35, 005	60, 846	34, 939	34, 287	36, 479	9, 973	32, 778	1, 773
United Kingdom	21, 326	37, 167	23, 993	49, 542	6, 895	49, 820	10, 667	42, 291	--------	--------
Algeria	364	29, 416	515	43, 152	[3] 1, 402	45, 122	[3] 822	57, 594	--------	56, 588
Canada	0	20, 992	0	31, 037	0	56, 556	0	45, 127	0	4, 641
Italy	114	13, 388	106	8, 318	148	1, 211	130	2, 676	85	346
Belgium	4, 343	9, 717	2, 742	15, 970	2, 310	22, 883	3, 409	22, 907	3, 854	16, 379
Norway	0	7, 782	0	7, 745	0	4, 422	0	3, 804	0	1, 065
Sweden	2, 177	7, 275	1, 959	10, 009	1, 692	9, 353	1, 388	9, 081	183	5, 024
United States	0	4, 427	0	3, 231	0	15, 565	0	14, 886	0	1, 489
Tunis	0	4, 283	0	[3] 4, 557	0	1, 694	0	[3] 4, 594	0	--------
Philippine Islands	0	4, 163	0	4, 123	0	3, 714	0	5, 916	0	5, 758
Czechoslovakia	386	3, 360	1, 515	6, 443	783	5, 650	739	5, 377	51	9, 612
Finland	0	2, 367	0	3, 574	0	2, 774	0	2, 084	0	865
Morocco	0	1, 878	0	3, 237	0	7, 267	0	6, 430	0	--------
Total	60, 277	205, 086	65, 835	251, 784	48, 169	260, 318	53, 634	232, 740	36, 951	103, 540

[1] Preliminary.
[2] Java and Madura only.
[3] International Yearbook of Agricultural Statistics.

Bureau of Agricultural Economics; official sources except where otherwise noted.
Conversions made on the basis of 7.5 pounds to the gallon.

TABLE 306.—*Peas, dry field:* [1] *Acreage, yield per acre, and production, by States average 1928–30, annual 1932 and 1933*

State	Acreage harvested			Yield per acre			Production		
	Average, 1928–30	1932	1933 [2]	Average, 1928–30	1932	1933 [2]	Average, 1928–30	1932	1933 [2]
	1,000 acres	*1,000 acres*	*1,000 acres*	*Bushels*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Michigan	28	19	20	13. 7	10. 0	9. 0	390	190	180
Wisconsin	30	18	18	16. 8	12. 5	17. 0	498	225	306
Montana	25	28	18	16. 8	13. 0	12. 0	415	364	216
Idaho	58	48	60	20. 0	20. 0	12. 0	1, 167	960	720
Colorado	53	54	55	12. 3	12. 0	11. 0	652	648	605
United States	194	167	171	16. 1	14. 3	11. 9	3, 121	2, 387	2, 027

[1] These figures are for the States in which peas are grown commercially in material quantities and do not include cowpeas.
[2] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 307.—*Clover seed (red and alsike), sweetclover seed, lespedeza (Japan clover) seed, and alfalfa seed: Acreage, yield, production, and weighted average price per bushel received by producers, by States, averages, and annual 1932 and 1933*

CLOVER SEED (RED AND ALSIKE)

State	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1926–30	1932	1933 [1]	Average, 1924–30	1932	1933 [1]	Average, 1926–30	1932	1933 [1]	1932	1933 [2]
	Acres	*Acres*	*Acres*	*Bu.*	*Bu.*	*Bu.*	*Bushels*	*Bushels*	*Bushels*	*Dol.*	*Dol.*
N.Y.	3,340	5,000	1,000	1.9	1.5	1.75	6,060	7,500	1,800	8.20	8.50
Pa.	11,800	15,000	12,000	1.6	1.6	1.7	18,300	24,000	20,400	8.00	7.90
Ohio	171,600	208,000	146,000	1.1	1.7	1.3	202,700	353,600	189,800	4.90	6.10
Ind.	154,200	203,000	110,000	0.9	1.5	1.0	166,300	304,500	110,000	4.65	5.70
Ill.	140,800	230,000	196,000	1.1	1.3	1.1	158,960	299,000	215,600	4.85	5.50
Mich.	102,200	104,000	156,000	1.4	1.4	1.4	150,400	145,600	218,400	5.00	5.50
Wis.	124,100	37,000	74,000	1.6	1.2	1.6	201,500	44,400	118,400	5.90	6.30
Minn.	69,400	62,000	68,000	2.0	2.2	2.4	134,680	136,400	163,200	5.20	6.10
Iowa	115,800	78,000	125,000	1.0	1.0	1.0	127,260	78,000	125,000	5.30	5.60
Mo.	46,200	40,000	44,000	1.5	1.2	1.1	62,120	48,000	48,400	5.60	5.30
N.Dak.	[3] 2,250	1,100	1,100	[3] 2.5	1.5	1.4	[3] 5,250	1,600	1,500	5.30	5.90
Nebr.	15,860	10,000	12,000	1.6	1.6	1.8	25,300	16,000	21,600	4.85	6.00
Kans.	11,800	6,000	8,000	1.7	1.2	1.4	19,960	7,200	11,200	5.30	5.20
Md.	[3] 13,500	28,000	8,000	------	1.5	1.1	[3] 18,900	42,000	8,800	5.30	7.30
Va.	[3] 13,000	27,000	3,000	------	1.3	1.0	[3] 17,050	35,100	3,000	5.50	7.60
Ky.	[3] 9,500	1,000	1,000	------	1.5	1.6	[3] 14,450	1,500	1,600	5.50	6.30
Tenn.	4,400	3,000	3,000	1.9	1.5	1.6	9,220	4,500	4,800	5.60	6.40
Idaho	28,000	21,000	20,000	4.3	4.0	4.0	122,480	84,000	80,000	4.50	5.20
Wyo.	[3] 2,500	2,500	2,500	------	2.0	2.0	[3] 9,150	5,000	5,000	4.65	5.30
Colo.	[3] 1,833	2,000	1,400	------	3.0	3.5	[3] 10,000	6,000	4,900	4.65	5.30
Oreg.	16,100	17,000	14,000	2.9	2.5	3.3	53,140	42,500	46,200	5.20	6.60
U.S.	1,033,900	1,100,600	1,006,000	1.38	1.53	1.39	1,492,400	1,686,400	1,399,600	5.02	5.37

SWEETCLOVER SEED

State	Acreage, Average 1926–30	Acreage, 1932	Acreage, 1933	Yield, Average 1924–30	Yield, 1932	Yield, 1933	Production, Average 1926–30	Production, 1932	Production, 1933	Price, 1932	Price, 1933
Ohio	6,600	6,000	5,000	3.3	2.9	2.5	22,020	17,400	12,500	2.00	2.40
Ind.	3,200	3,000	2,000	3.3	3.0	2.0	9,000	9,000	4,000	2.35	2.95
Ill.	15,800	13,000	16,000	3.8	2.5	2.5	58,340	32,500	40,000	2.25	2.65
Wis.	------	1,200	3,000	------	3.0	3.5	------	3,600	10,500	2.30	2.60
Minn.	42,000	61,000	61,000	4.2	4.3	4.0	181,600	262,300	244,000	1.20	1.80
Iowa	15,600	6,000	5,000	4.0	3.0	3.8	63,280	18,000	19,000	1.70	2.15
Mo.	5,200	2,000	2,000	3.4	2.3	3.1	16,600	4,600	6,200	2.50	2.70
N.Dak.	61,900	48,000	37,400	4.4	2.5	2.8	265,900	120,000	104,700	1.40	2.15
S.Dak.	48,400	23,000	29,000	3.9	3.5	2.4	195,660	80,500	69,600	1.20	1.85
Nebr.	23,440	19,000	21,000	3.8	3.0	3.7	94,060	57,000	77,700	1.55	2.30
Kans.	22,040	18,000	18,000	4.1	3.3	3.8	90,020	59,400	68,400	1.65	2.15
Mont.	5,800	5,000	6,000	3.9	2.5	3.5	25,300	12,500	21,000	2.35	3.00
Colo.	6,100	3,500	3,500	5.0	4.5	3.5	31,500	15,800	12,200	2.35	2.25
U.S.	257,080	208,700	208,900	4.08	3.32	3.30	1,057,780	692,600	689,800	1.46	2.09

LESPEDEZA (JAPAN CLOVER) SEED [4]

State	Acreage, Average 1926–30	Acreage, 1932	Acreage, 1933	Yield, Average 1924–30	Yield, 1932	Yield, 1933	Production, Average 1926–30	Production, 1932	Production, 1933	Price, 1932	Price, 1933
N.C.	------	41,000	50,000	------	5.5	4.5	------	225,500	225,000	1.50	1.25
Ky.	------	46,000	91,000	------	8.5	8.0	------	391,000	728,000	1.00	1.15
Tenn.	------	92,000	165,000	------	10.5	14.0	------	966,000	2,310,000	1.50	1.15
Miss.	------	2,400	2,000	------	3.8	4.0	------	9,100	8,000	1.00	1.12
La.	------	1,200	1,500	------	4.0	4.0	------	4,800	6,000	1.75	1.20
U.S.	------	182,600	309,500	------	8.74	10.59	------	1,596,400	3,277,000	1.37	1.16

See footnotes at end of table.

TABLE 307.—*Clover seed (red and alsike), sweetclover seed, lespedeza (Japan clover) seed, and alfalfa seed: Acreage, yield, production, and weighted average price per bushel received by producers, by States, averages, and annual 1932 and 1933*—Continued

ALFALFA SEED

State	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1926–30	1932	1933 [1]	Average, 1924–30	1932	1933 [1]	Average, 1926–30	1932	1933 [1]	1932	1933 [2]
	Acres	*Acres*	*Acres*	*Bu.*	*Bu.*	*Bu.*	*Bushels*	*Bushels*	*Bushels*	*Dol.*	*Dol.*
Mich	[3] 5,500	12,000	25,000	------	1.5	1.7	[3] 14,100	18,000	42,500	7.10	6.40
Wis	[3] 8,800	12,500	26,000	------	1.2	1.3	[3] 14,850	15,000	33,800	9.00	8.40
Minn	13,520	36,300	36,300	[3] 1.7	1.5	1.5	21,360	54,400	54,400	7.40	6.60
N.Dak	11,800	12,000	13,200	1.9	1.2	1.0	21,540	14,400	13,200	7.60	7.20
S.Dak	39,040	19,000	35,000	1.9	1.7	1.4	76,900	32,300	49,000	6.60	6.50
Nebr	21,600	26,000	47,000	2.3	1.6	2.0	48,600	41,600	94,000	5.10	5.40
Kans	29,780	31,000	45,000	2.6	2.0	3.3	83,540	62,000	148,500	4.60	4.95
Okla	13,960	11,800	12,200	3.0	3.0	3.3	41,980	35,400	40,300	3.55	5.00
Tex	4,160	2,000	2,000	2.9	2.5	3.1	12,500	5,000	6,200	3.55	5.50
Mont	36,000	23,100	27,600	2.5	1.3	2.0	89,100	30,000	55,200	6.70	6.20
Idaho	27,000	17,000	30,700	4.2	2.5	4.5	112,600	42,500	138,200	6.10	5.60
Wyo	6,800	14,000	15,000	3.2	2.0	2.5	21,400	28,000	37,500	6.00	4.00
Colo	8,840	10,000	10,000	3.5	2.5	2.5	29,420	25,000	25,000	5.50	5.70
N.Mex	4,960	3,200	2,900	3.6	3.2	3.0	18,780	10,200	8,700	4.30	6.50
Ariz	18,000	14,000	14,000	5.1	4.0	5.0	88,200	56,000	70,000	3.75	4.95
Utah	57,600	15,000	22,000	3.4	1.2	1.5	157,160	18,000	33,000	5.50	4.70
Oreg	2,200	3,000	3,000	[3] 3.7	3.5	2.4	7,780	10,500	7,200	7.40	6.60
Calif	15,040	12,500	15,400	3.6	3.0	4.3	51,680	37,500	66,200	4.70	5.30
U.S.	317,220	274,400	382,300	3.12	1.95	2.41	898,020	535,800	922,900	5.60	5.60

[1] Preliminary.
[2] Average price for 4 months for clover seed, 4 months for sweetclover, and 6 months for alfalfa; Dec. 1 price for lespedeza seed, for 1932 and 1933.
[3] Short-time average.
[4] Bushels of 25 pounds.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 308.—*Alfalfa seed: Average price per bushel received by producers, United States, 1924–25 to 1933–34*

Year	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	Weighted average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924–25	11.13	10.99	10.74	10.39	10.16	10.33	10.52	11.05	11.72	12.73	12.00	10.99	10.77
1925–26	11.41	9.88	10.51	10.30	10.65	9.87	9.51	9.48	9.82	9.94	9.92	10.22	10.14
1926–27	9.79	9.37	9.17	8.94	9.42	9.48	10.12	10.33	10.50	11.04	10.63	10.62	9.54
1927–28	10.17	9.62	9.69	9.78	9.45	9.76	9.55	9.74	10.11	10.35	10.52	10.91	9.76
1928–29	10.24	10.38	10.25	10.71	11.96	12.69	12.67	13.19	13.84	14.19	14.69	14.91	11.35
1929–30	14.68	13.52	12.85	11.68	10.83	11.10	11.15	11.16	11.97	11.97	12.38	12.05	11.78
1930–31	12.10	11.91	11.36	10.68	10.18	9.86	9.97	10.20	9.91	9.89	9.70	9.64	10.66
1931–32	9.98	9.69	8.35	6.94	6.58	6.97	6.36	6.58	6.70	6.79	6.58	6.47	7.43
1932–33	6.53	5.98	5.59	5.25	5.19	5.42	5.68	5.89	5.93	6.32	6.64	6.82	5.57
1933–34	7.10	7.05	6.31	5.52	5.12	5.10	------	------	------	------	------	------	--------

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; yearly price obtained by weighting monthly prices by monthly marketings. For previous data see 1930 or earlier Yearbooks.

TABLE 309.—*Clover seed, red: Average price per bushel received by producers, United States, 1924–25 to 1933–34*

Year	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Weighted average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924–25	12.15	12.80	13.42	15.31	16.17	16.95	18.19	17.40	16.82	15.48	15.67	14.86	14.21
1925–26	13.42	14.42	14.85	15.48	16.04	16.83	17.45	17.88	18.08	17.16	17.17	16.83	15.27
1926–27	16.63	17.21	17.85	17.89	19.07	20.18	21.16	22.75	22.45	22.07	20.69	17.94	18.20
1927–28	16.78	15.67	15.07	15.33	15.97	16.37	16.90	16.92	17.04	16.89	16.42	15.90	15.98
1928–29	16.26	16.49	16.68	16.81	16.96	17.37	17.54	17.96	17.90	17.62	17.17	16.30	16.89
1929–30	12.48	10.68	9.75	9.94	9.92	9.95	10.03	10.23	10.23	10.40	10.34	11.01	10.48
1930–31	11.65	12.47	12.35	11.76	11.78	11.64	11.54	11.59	11.80	11.84	10.76	10.08	11.80
1931–32	7.99	6.73	6.97	7.34	7.27	7.31	7.58	7.69	7.58	7.19	6.77	5.79	7.33
1932–33	5.34	4.70	4.61	4.67	4.73	4.78	4.95	5.25	5.46	5.58	6.04	6.28	5.11
1933–34	5.83	5.72	6.00	6.10									

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; yearly prices obtained by weighting monthly prices by average monthly marketings. For previous data see 1930 or earlier Yearbooks.

TABLE 310.—*Timothy seed: Acreage, yield, production, and weighted average price per bushel received by producers, by States, averages, and annual 1932 and 1933*

State	Acreage harvested			Yield per acre			Production			Price for crop of—	
	Average, 1926–30	1932	1933 [1]	Average, 1924–30	1932	1933 [1]	Average, 1926–30	1932	1933 [1]	1932	1933 [2]
	Acres	*Acres*	*Acres*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Dol.*	*Dol.*
Pennsylvania	7,000	4,000	4,400	3.9	2.5	2.8	29,860	10,000	12,300	2.20	2.20
Ohio	51,400	23,000	21,000	3.9	3.5	3.3	218,720	80,500	69,300	1.10	1.85
Indiana	15,600	9,000	14,000	3.2	3.5	2.7	56,120	31,500	37,800	1.30	2.05
Illinois	79,600	57,000	57,000	3.4	3.0	2.6	291,320	171,000	148,200	.95	1.85
Wisconsin	9,600	4,000	2,600	4.4	3.8	3.0	38,120	15,200	7,800	1.30	2.10
Minnesota	35,600	38,000	15,000	4.0	3.5	3.4	142,440	133,000	51,000	.85	1.70
Iowa	199,880	170,000	110,000	4.0	4.5	3.5	828,960	765,000	385,000	.90	1.85
Missouri	95,600	64,000	67,000	3.3	3.0	2.9	320,620	192,000	194,300	.95	1.45
North Dakota	2,880	1,400	1,400	3.3	2.3	1.5	8,640	3,200	2,100	1.00	1.75
South Dakota	11,220	2,000		3.0	2.5		31,960	5,000		.85	
United States	511,180	372,400	292,400	3.75	3.78	3.10	1,978,440	1,406,400	907,800	.94	1.77

[1] Preliminary.
[2] Average price for 5 months.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 311.—*Timothy seed: Average price per bushel received by producers, United States, 1924–25 to 1933–34*

Year	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Weighted average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924–25	3.20	3.12	3.16	2.88	3.03	3.04	3.03	3.15	3.24	3.10	3.05	3.47	3.15
1925–26	3.36	3.21	3.21	3.31	3.41	3.38	3.56	3.51	3.47	3.36	3.41	3.26	3.34
1926–27	2.68	2.55	2.61	2.46	2.58	2.62	2.70	2.69	2.76	2.69	2.76	2.58	2.62
1927–28	2.06	1.66	1.58	1.61	1.73	1.78	1.92	1.86	1.88	1.96	2.08	2.07	1.88
1928–29	1.86	1.91	2.08	2.20	2.20	2.41	2.49	2.62	2.67	2.65	2.56	2.36	2.09
1929–30	1.69	1.88	2.02	2.17	2.25	2.46	2.37	2.51	2.67	2.69	2.65	2.53	1.92
1930–31	2.51	2.62	3.06	3.11	3.09	3.29	3.32	3.58	3.61	3.43	3.16	2.33	2.66
1931–32	1.38	1.43	1.44	1.46	1.54	1.53	1.62	1.70	1.59	1.61	1.39	1.20	1.43
1932–33	.91	.93	.88	.92	.95	.98	.99	1.01	1.02	1.10	1.10	1.38	.95
1933–34	1.65	1.83	2.13	2.20	2.18								

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by production to obtain a price for the United States; yearly prices obtained by weighting monthly prices by average monthly marketings. For previous data see 1930 or earlier Yearbooks.

TABLE 312.—*Field seeds: Average price per 100 pounds, specified markets, 1924–33*

Season, January–May	Alfalfa, Kansas City	Alsike clover, Chicago	Red clover, Chicago	Kentucky bluegrass, Kansas City	Timothy, Chicago	Sweetclover, Minneapolis	Meadow fescue, Kansas City	Lespedeza, Louisville	German millet, Kansas City	Amber sorgo, Kansas City	Hairy vetch, Baltimore	Sudan grass, Kansas City
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924	22.26	15.66	20.87	25.09	7.96	15.28	10.58	20.78	3.80	1.74	10.45	8.22
1925	22.84	23.38	33.97	28.00	6.79	12.34	9.42	19.50	4.98	2.24	8.82	5.68
1926	20.40	27.55	33.67	38.05	7.94	9.65	15.49	15.74	3.10	2.72	12.25	4.31
1927	19.90	37.42	42.54	20.53	5.97	13.65	25.00	8.57	3.25	3.10	15.10	6.68
1928	21.90	27.80	30.65	19.72	4.74	8.55	14.70	17.65	2.45	1.99	9.72	3.62
1929	26.04	34.65	33.63	31.31	6.54	8.50	16.01	20.43	3.44	2.09	9.30	5.80
1930	24.81	19.90	21.35	20.00	8.06	8.00	10.00	14.37	3.45	3.47	9.00	5.40
1931	22.56	23.88	25.04	34.37	10.55	9.22	10.76	14.69	3.69	2.81	8.45	7.38
1932	13.65	15.05	16.35	13.45	4.30	5.50	5.50	8.30	1.80	1.20	7.50	1.75
1933	13.60	11.95	11.40	8.35	3.25	4.50	4.15	7.50	1.60	1.15	7.00	2.10

Bureau of Agricultural Economics. Compiled from weekly reports to the Bureau from wholesale seedsmen in the various markets. These prices are the average wholesale selling prices for high-quality seed.

TABLE 313.—*Field seeds: Average wholesale price per 100 pounds at specified markets, by months, 1924–33*

Season	Alfalfa, common, Kansas City					Alsike clover, Chicago				
	Jan.	Feb.	Mar.	Apr.	May	Jan.	Feb.	Mar.	Apr.	May
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
1924	21.50	21.50	22.30	23.00	23.00	15.55	15.45	15.45	15.85	16.00
1925	22.00	22.10	23.10	23.50	23.50	21.75	22.35	23.05	24.75	25.00
1926	20.00	20.00	20.00	21.00	21.00	26.10	27.25	27.85	28.20	28.40
1927	19.50	20.00	20.00	20.00	20.00	36.00	37.95	39.45	38.85	34.85
1928	21.50	22.00	22.00	22.00	22.00	28.35	28.10	27.80	27.70	27.10
1929	26.00	26.00	26.20	26.00	26.00	34.65	33.90	35.15	35.45	34.15
1930	23.55	24.75	25.25	25.25	25.25	20.10	19.90	19.50	20.10	19.90
1931	22.90	22.50	22.50	22.50	22.50	23.70	24.00	23.75	23.20	22.75
1932	13.50	13.50	13.50	13.80	14.00	15.50	15.30	15.00	14.75	14.65
1933	13.50	13.50	13.00	13.60	14.50	11.70	11.80	11.95	12.00	12.30
	Red clover, Chicago					Sweetclover, Minneapolis				
1924	23.10	21.55	21.10	19.60	19.00	15.00	15.00	15.40	15.90	15.10
1925	34.20	36.00	34.30	33.35	32.00	13.00	13.00	12.75	11.95	11.00
1926	32.15	36.50	34.70	34.00	34.00	9.00	9.45	9.85	9.95	10.00
1927	38.60	42.30	45.00	44.25	42.55	14.35	14.35	14.00	13.10	12.50
1928	32.50	30.95	29.95	30.20	29.70	8.75	8.70	8.45	8.45	8.40
1929	33.00	33.20	34.40	34.35	33.20	8.50	8.50	8.50	8.50	8.50
1930	21.20	21.35	21.00	21.60	21.60	8.00	8.00	8.00	8.00	8.00
1931	26.00	26.05	25.45	24.15	23.55	9.50	9.40	9.15	9.05	9.00
1932	16.80	16.50	16.25	16.15	16.10	5.75	5.50	5.50	5.50	5.25
1933	11.70	10.55	10.85	11.60	12.30	4.50	4.50	4.50	4.50	4.50
	Kentucky bluegrass, Kansas City					Timothy, Chicago				
1924	25.10	25.35	25.00	25.00	25.00	8.15	8.25	8.10	7.75	7.55
1925	28.00	28.00	28.00	28.00	28.00	6.95	6.70	6.50	6.85	6.95
1926	40.00	39.25	37.00	37.00	37.00	8.10	8.10	7.95	7.80	7.75
1927	20.25	21.00	21.00	20.40	20.00	6.05	6.05	5.85	5.95	5.95
1928	19.50	19.50	19.60	20.00	20.00	4.75	4.55	4.35	4.75	5.30
1929	31.50	30.75	31.30	31.50	31.50	6.75	6.70	6.62	6.45	6.15
1930	20.00	20.00	20.00	20.00	20.00	7.10	7.20	7.30	8.25	10.45
1931	34.10	34.25	34.50	34.50	34.50	10.20	10.45	10.45	10.70	10.95
1932	13.00	13.25	13.60	13.75	13.75	4.65	4.40	4.25	4.05	4.00
1933	8.35	8.25	8.30	8.00	8.75	3.20	3.15	3.00	3.20	3.80

Bureau of Agricultural Economics. Compiled from weekly reports to the Bureau from wholesale seedsmen in the various markets. These prices are the average wholesale selling price for high-quality seed.

TABLE 314.—*Forage-plant seeds: Imports into United States, 1923–24 to 1932–33*

SEEDS PERMITTED ENTRY UNDER FEDERAL SEED ACT

Kind of seed	Year beginning July									
	1923–24	1924–25	1925–26	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
Alfalfa	12, 818	4, 783	4, 548	5, 134	782	1, 146	337	233	353	41
Canada bluegrass	817	1, 150	284	882	1, 102	1, 228	608	985	366	191
Kentucky bluegrass				22						
Awnless bromegrass			11			5	4	4		2
Alsike clover	11, 056	10, 425	10, 989	4, 163	7, 609	4, 798	7, 220	94		
Crimson clover	7, 745	4, 834	5, 766	2, 385	1, 346	3, 395	3, 099	3, 079	1, 831	685
Red clover	24, 729	6, 541	19, 725	10, 816	4, 641	7, 547	2, 154	2, 805	31	
White clover	1, 408	1, 227	1, 666	975	1, 778	2, 410	2, 278	768	893	1, 943
Clover mixtures	74	13	122	24	41	250	32	15	16	1
Meadow fescue		1	13	16		8	1			
Foxtail millet	184	243	125		30	108				
Grass mixtures						5	5	1	3	1
Orchard grass	603	992	253	260	173	2, 377	318	342	1	19
Winter rape	6, 600	4, 345	6, 526	6, 788	6, 438	6, 982	6, 681	5, 119	3, 762	5, 174
English ryegrass	1, 952	1, 335	2, 302	1, 203	1, 083	1, 180	937	824	646	463
Italian ryegrass	1, 034	831	1, 683	833	456	300	244	200	75	42
Timothy		1	3	45	23		37			
Hairy vetch	3, 215	2, 068	3, 986	2, 124	3, 895	4, 064	2, 483	1, 628	2, 365	2, 894
Hungarian vetch				76						
Spring vetch	1, 210	1, 266	1, 603	992	563	1	821	704	202	96
SEEDS NOT SUBJECT TO THE FEDERAL SEED ACT										
Bentgrass	348	258	[1] 328	537	554	649	890	213	327	52
Biennial white sweetclover	4, 039	3, 493	5, 879	4, 130	3, 379	1, 464	206			
Biennial yellow sweetclover	222	52	502	174	116	29	3			
Bur clover	5	5								
Crested dogtail	83	44	39	18	55	79	22	40	28	16
Chewings fescue	1, 184	842	655	954	1, 107	1, 453	988	1, 018	1, 030	920
Other fescues [2]	482	793	1, 043	384	427	671	624	379	573	307
Carpet grass		5	15	3	14	7	7	12	17	1
Dallis grass	6	29	1	1	16	12	27	38	19	18
Rescue grass	2		3				3	2	5	5
Rhodes grass	22	10	21	10	38	24	16	12	3	3
Rough-stalked meadow grass	43	40	75	170	286	306	347	378	554	427
Sudan grass								449	79	
Velvet grass	20	6	8	15	11	5	42		1	9
Wood meadow grass	17	26	40	24	39	28	21	13	35	6
Small-flowered melilot							169			
Japanese millet				2	146	141				
Redtop			[3] 4	3			5			
Yellow trefoil						2	10	6	3	10
Yarrow	1				1	2	1	1	2	
Other forage crop	20	7	105	3	31	15	7	10	33	14

[1] In addition to this amount, 15,700 pounds were imported subject to the Federal Seed Act, previous to May 26, 1926.

[2] All other fescues except meadow fescue and Chewings fescue.

[3] In addition to this amount, 3,200 pounds were imported subject to the Federal Seed Act previous to May 26, 1926.

Division of Seed Investigations, Bureau of Plant Industry.

TABLE 315.—*Sunflower seed: Production, by States, and imports, average 1924–33, annual 1924–33*

State	Average 1924–33	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933 [1]
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
California	2, 127	800	1, 000	1, 000	3, 000	4, 225	4, 500	250	1, 700	2, 800	2, 000
Illinois	3, 514	3, 723	2, 993	3, 012	4, 347	9, 824	8, 900	190	1, 000	850	300
Missouri	2, 083	3, 300	3, 520	3, 995	3, 053	2, 109	2, 700	450	250	750	700
Total	7, 724	7, 823	7, 513	8, 007	10, 400	16, 158	16, 100	890	2, 950	4, 400	3, 000
Imports	808	1, 089	431	249	987	2, 300	1, 621	248	409	598	145

[1] Preliminary.

Bureau of Agricultural Economics. Production figures compiled from dealers' and growers' reports; imports from Bureau of Foreign and Domestic Commerce, Department of Commerce.

STATISTICS OF BEEF CATTLE, HOGS, SHEEP, HORSES, AND MULES

TABLE 316.—*Cattle and calves: Number on farms and farm value per head in the United States, Jan. 1, 1900–1934*

Year	All [1]	Other than milk cows: Number [2]	Other than milk cows: Farm value per head Jan. 1 [3]	Year	All [1]	Other than milk cows: Number [2]	Other than milk cows: Farm value per head Jan. 1 [3]
	Thous.	*Thous.*	*Dollars*		*Thous.*	*Thous.*	*Dollars*
1900 [4]	*67,720*	*50,584*	----------	1918	71,229	50,208	38.63
1900	57,518	42,265	23.60	1919	70,261	49,042	41.79
1901	60,544	45,023	18.83	*1920* [4]	*66,639*	*46,934*	----------
1902	62,215	46,428	17.73	1920	70,325	48,870	40.01
1903	63,788	47,715	17.44	1921	68,633	47,193	29.05
1904	64,137	47,678	15.42	1922	68,663	46,841	21.89
1905	64,003	47,161	14.32	1923	67,384	45,285	23.41
1906	62,872	45,595	14.98	1924	65,832	43,544	23.03
1907	62,373	44,723	16.16	*1925* [4]	*60,760*	*43,115*	----------
1908	60,794	42,857	15.96	1925	63,115	40,610	22.57
1909	59,634	41,480	16.53	1926	59,977	37,666	26.40
1910 [4]	*61,803*	*41,178*	----------	1927	57,528	35,369	28.12
1910	57,940	39,734	18.02	1928	56,701	34,572	36.30
1911	56,219	37,975	19.41	1929	57,878	35,548	42.93
1912	55,022	36,710	20.03	*1930* [4]	*63,896*	*43,397*	----------
1913	55,833	37,307	24.91	1930	59,730	36,820	40.44
1914	58,737	39,807	29.42	1931	60,987	37,411	28.08
1915	62,532	43,006	31.54	1932	62,656	38,181	18.32
1916	66,394	46,330	31.69	1933	65,552	40,275	14.11
1917	69,533	48,992	33.91	1934 [5]	67,352	41,290	12.72

[1] Figures for 1900–1919 are tentative revised estimates of the Bureau of Agricultural Economics.
[2] Obtained by subtracting the estimates of "milk cows on farms" shown in table 378 from the estimates of "all cattle on farms" shown in this table.
[3] Data for 1900–1925 are an old series adjusted on basis average relationship between the old and new series for 1926–28. Old series was weighted averages of prices by age groups only and was shown in 1928 Yearbook. The conversion factor was 0.9466 (base is old series). Data for 1926–34 are a new series, referred to above, of average values by age and sex classification, weighted by numbers in each class.
[4] Italic figures are from the census. 1900, 1910, and 1930 include spring-born calves. Census dates were June 1, 1900; Apr. 15, 1910; Jan. 1, 1920 and 1925; Apr. 1, 1930.
[5] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 317.—*Cattle and calves, including cows and heifers kept for milk: Number on farms and farm value per head, by States, Jan. 1, 1932–34*

State and division	Number 1932	Number 1933	Number 1934 [2]	Farm value per head [1] 1932	Farm value per head [1] 1933	Farm value per head [1] 1934
	Thous.	*Thous.*	*Thous.*	*Dollars*	*Dollars*	*Dollars*
Maine	249	251	252	37.10	26.40	24.30
New Hampshire	131	131	130	45.00	34.00	30.40
Vermont	435	446	434	40.60	31.00	29.30
Massachusetts	186	179	180	69.50	50.90	50.80
Rhode Island	29	29	30	71.20	54.50	54.70
Connecticut	159	159	159	66.50	49.00	49.80
New York	1,986	2,042	2,049	49.50	39.10	40.60
New Jersey	163	170	175	73.50	51.10	61.40
Pennsylvania	1,398	1,412	1,440	47.20	33.20	34.60
North Atlantic	4,736	4,819	4,849	49.56	37.10	38.20
Ohio	1,610	1,674	1,708	34.60	25.10	22.50
Indiana	1,428	1,485	1,485	30.50	22.80	20.10
Illinois	2,361	2,525	2,500	31.80	24.00	22.00
Michigan	1,390	1,418	1,461	34.80	25.80	23.40
Wisconsin	3,213	3,198	3,230	34.40	24.20	22.90
East North Central	10,002	10,300	10,384	33.32	24.31	22.29
Minnesota	3,246	3,408	3,476	25.60	18.30	17.00
Iowa	4,200	4,284	4,455	26.70	20.60	19.50
Missouri	2,660	2,735	2,770	23.80	18.40	15.50
North Dakota	1,566	1,750	1,835	22.30	16.60	13.80
South Dakota	1,925	2,214	2,214	22.00	17.00	14.40
Nebraska	3,138	3,326	3,460	24.20	18.80	17.90
Kansas	3,298	3,463	3,567	22.00	17.20	15.20
West North Central	20,033	21,180	21,777	24.17	18.39	16.63
North Central	30,035	31,480	32,161	27.22	20.33	18.46
Delaware	49	50	49	46.20	30.90	35.20
Maryland	277	282	285	41.20	29.00	29.60
Virginia	792	800	792	27.80	21.20	20.40
West Virginia	510	536	547	28.50	22.40	20.30
North Carolina	551	588	594	27.20	20.60	19.90
South Carolina	274	290	290	23.70	19.50	20.10
Georgia	811	852	894	16.50	12.30	13.00
Florida	458	480	494	17.90	14.00	14.80
South Atlantic	3,722	3,878	3,945	25.06	19.00	18.77
Kentucky	1,040	1,071	1,115	23.20	18.00	16.30
Tennessee	1,032	1,094	1,116	20.50	15.30	14.30
Alabama	810	875	901	15.80	11.80	12.30
Mississippi	993	1,052	1,094	14.40	10.20	10.30
Arkansas	848	915	960	16.30	12.70	10.70
Louisiana	740	784	839	18.20	13.10	13.60
Oklahoma	2,131	2,280	2,394	18.80	14.10	11.30
Texas	6,127	6,495	6,740	17.40	13.40	11.70
South Central	13,721	14,566	15,159	17.94	13.61	12.14
Montana	1,276	1,416	1,543	24.00	20.90	17.20
Idaho	661	701	736	24.70	19.50	15.00
Wyoming	863	930	1,004	24.50	19.80	16.20
Colorado	1,526	1,557	1,650	22.50	16.10	14.50
New Mexico	1,144	1,167	1,225	21.60	15.20	14.30
Arizona	851	894	930	22.30	16.50	15.10
Utah	475	460	460	22.70	19.70	17.10
Nevada	310	316	329	25.70	20.80	18.90
Washington	615	646	659	37.00	25.50	19.90
Oregon	795	835	852	29.80	21.10	15.90
California	1,926	1,887	1,850	33.60	25.50	23.90
Western	10,442	10,809	11,238	26.45	20.08	17.30
United States	62,656	65,552	67,352	26.62	19.95	18.28

[1] Sum of total value of subgroups (classified by age and sex) divided by total number and rounded to nearest dime for States. Division and United States averages not rounded. State figures are new weighted value series, not comparable to State figures previously published for the years prior to 1925.
[2] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 318.—*Cattle: Number in countries having 150,000 or over, averages 1921–25 and 1926–30, annual 1929–32*

Country	Date or month of estimate	Average 1921–25[1]	Average 1926–30[1]	1929	1930	1931	1932
NORTH AND CENTRAL AMERICA AND WEST INDIES		*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
United States	Jan. 1	66,725	58,363	57,878	59,730	60,987	62,656
Canada	June	9,588	8,860	8,825	8,937	7,991	8,511
Mexico	do	[2] 2,492	[3] 4,660		[4] 3,735		
Guatemala	July	268	397	396	416	387	369
Honduras		[5] 466	(517)		517		
Salvador		(340)	[4] (328)		[4] 328		
Nicaragua		[6] 1,200	(1,200)				
Costa Rica		435	436	399			
Cuba	Jan. 1 [7]	4,841	4,496	4,421	4,845	4,339	
Dominican Republic	May	640	(488)	488			
Puerto Rico		279	[4] 311		[4] 311		
Estimated total [8]		87,900	80,600				
SOUTH AMERICA							
Colombia		7,468	6,857		7,343		
Venezuela		2,689	[6] 3,000		[6] 3,000		
British Guiana		117	148	154	155	181	
Ecuador		[6] 1,500	1,282	[6] 1,285			
Peru	February	1,198	[4] 1,806	[4] 1,806			
Bolivia		2,145	1,918	1,960	2,050	2,064	
Chile		1,957	2,153		[4] 2,388		[4] 2,388
Brazil [9]	September	[4 10] 34,271	[6] 40,000		[6] 40,000		42,539
Uruguay		[4] 8,432	[4] 7,128		[4] 7,128		7,372
Paraguay	Jan. 1 [7]	4,600	(4,500)		[6] 4,000		
Argentina	Jan. 1	[4] 37,065	[11] 32,212		[11] 32,212		
Estimated total [8]		101,500	101,000				
EUROPE							
England and Wales	June	5,824	6,072	5,958	5,850	6,065	6,358
Scotland	do	1,171	1,218	1,233	1,233	1,209	1,233
Northern Ireland	do	748	695	700	673	681	715
Irish Free State	do	4,266	4,059	4,137	4,038	4,029	4,025
Norway [12]	do	1,128	1,221	1,224	1,251	1,310	1,342
Sweden	June–July	[4 10] 2,736	2,980	(2,900)	3,060	3,109	3,120
Denmark	July	2,613	2,981	3,036	3,057	3,208	3,237
Holland	May–June	[4] 2,063	[4] 2,366		[4] 2,366		
Belgium	Jan. 1 [7]	1,550	1,719	1,751	1,738	1,759	1,768
France	do	13,582	14,886	15,005	15,631	15,467	15,434
Spain	do	3,457	3,714	[4] 3,660	(3,657)	(3,655)	3,654
Portugal		797	[4] 853				
Italy [9]	March–April	6,812	[4] 7,108		[4] 7,108		
Switzerland	April	[4] 1,425	1,598			1,609	
Germany	Jan. 1 [7]	16,786	17,776	18,414	18,033	18,470	19,124
Austria	January–April	2,241	[4] 2,313		[4] 2,313		
Czechoslovakia [9]	Jan. 1 [7]	4,377	4,693	(4,570)	[13] 4,540	4,459	4,451
Hungary	April	1,866	1,814	1,819	1,785	1,814	1,819
Yugoslavia [9]	Jan. 1	4,204	3,749	3,686	3,765	3,850	3,912
Greece [9]	Jan. 1 [7]	742	926	955	874	881	913
Bulgaria [9]	do	1,928	2,266	2,266			
Rumania [9]	do	5,570	4,820	4,625	4,521	[14] 4,159	4,269
Poland	June	[15] 8,063	9,019	9,057	9,400	9,786	9,461
Lithuania	Jan. 1 [7]	1,149	1,245	1,199	1,160	1,034	1,121
Latvia	June	867	977	[6] 978	1,026	1,117	1,153
Estonia	July	508	623	604	627	669	692
Finland	September	1,847	1,841	1,744	1,810	1,822	1,806
Russia, European and Asiatic		54,120	64,900	68,100	52,500	47,900	40,700
Estimated total, excluding Russia [8]		98,400	103,700				
AFRICA							
Abyssinia		(4,000)	(4,000)	4,000			
Morocco		1,711	1,971	2,151	2,092	1,909	1,990
Algeria	September	853	903	897	938	872	893
Tunis	Jan. 1 [7]	459	464	484	498	502	540
French West Africa		2,165	2,536	2,631	2,787	2,868	
French Sudan		1,086	1,025	1,139	1,139	1,400	
Nigeria and British Cameroons		2,909	3,117	3,083	3,118	3,056	
French Cameroon		354	412	484	504	519	
Egypt [9]	September	1,310	1,551	1,623	1,572	1,614	1,791
Anglo-Egyptian Sudan		864	1,461	1,505	1,300	1,200	
Italian Somaliland	February	[4 10] 1,246	1,110	1,112	1,113		
Eritrea		553	[4] 749				
Kenya Colony	March–June	3,038	3,812	3,498	5,193		
Uganda	Jan. 1 [7]	1,109	1,605	1,710	1,910	1,985	2,065
French Equatorial Africa		815	1,278	[6] 1,248	[6] 1,456	[6] 1,504	
Belgian Congo		495	398	256	289	312	
Ruanda-Urundi		700	816	820	940		
Angola-Portuguese West Africa		524	1,073	1,423			
British Southwest Africa		561	643	698	655	465	
Bechuanaland		482	602	625	630	641	
Union of South Africa	August	9,459	10,640	10,695	10,751		
Basutoland		604	653	664	649	[16] 500	550

See footnotes at end of table.

TABLE 318.—*Cattle: Number in countries having 150,000 or over, averages 1921–25 and 1926–30, annual 1929–32*—Continued

Country	Date or month of estimate	Average 1921–25[1]	Average 1926–30[1]	1929	1930	1931	1932
WEST INDIES		*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
Rhodesia:							
Northern	Jan. 1 [7]	289	415	441	473	466	452
Southern	do	1,794	2,268	2,326	2,398	2,468	2,582
Swaziland	do	244	316	367	380	334	372
Tanganyika Territory		3,806	4,947	5,170	5,099	5,336	
Nyasaland	Mar. 31	120	151	166	171	175	
Mozambique (Portuguese East Africa).		342	446	479	491	517	
Madagascar	February	7,708	7,038	6,841	7,048		
Estimated total [8]		50,000	56,900				
ASIA							
Turkey European, and Asiatic [9]		[17] 5,060	5,464	5,177	5,243	5,363	5,870
Persia		[6] 1,000	(1,000)			664	
Syria and Lebanon		257	300	332	391	426	
India: [9]							
British	December–April	146,759	151,847	151,339	[4] 154,629	152,868	
Native States		33,982	36,421	33,671	[4] 47,104		
Ceylon [9]	Jan. 1 [7]	1,459	1,570	1,618	1,650	1,660	1,580
China, including Turkistan, Manchuria, and Inner Mongolia.		[18] 19,000	[19] 23,000				[19] 23,000
Japan	Jan. 1 [7]	1,440	1,474	1,484	1,488	1,498	1,512
Chosen	do	1,567	1,586	1,570	1,586	1,612	
Formosa [9]	do	407	385	388	390	391	
French Indo-China [9]		3,600	3,896	3,926	3,919	3,913	
Siam [9]	March	6,701	8,783	9,379	9,153	9,513	
Philippine Islands [9]	Jan. 1 [7]	2,393	2,909	3,011	3,110	3,249	3,432
Dutch East Indies:							
Java and Madura [9]	do	5,287	5,708	5,658	5,700	5,768	
Outer possessions [9]	do	1,872	1,994	2,022	2,049	2,064	
Estimated total, excluding Russia.[8]		232,600	248,200				
OCEANIA							
Australia	Jan. 1 [7]	13,789	11,873	11,301	11,202	11,721	12,260
New Zealand	Jan. 31	3,393	3,439	3,446	3,766	4,081	4,072
Estimated total [8]		17,400	15,500				
Total countries reporting all periods:							
To 1931 (63) [20]		437,214	454,500	457,787	449,187	445,172	
To 1932 (40) [20]		249,662	256,423	259,154	246,681	244,040	241,804
Estimated world total including Russia.[8] [21]		641,900	670,800				

[1] Average for 5-year period if available, otherwise for any year or years within this period except as otherwise stated.
[2] Incomplete.
[3] Average of 1926 estimate for 96 percent municipalities and 1930 census
[4] Census.
[5] Year 1918.
[6] Unofficial.
[7] Countries reporting as of December have been considered as of Jan. 1 of following year.
[8] These totals include interpolations for a few countries not reporting each year and rough estimates for some others.
[9] Buffaloes included.
[10] Year 1920.
[11] Census June.
[12] In rural communities only.
[13] Preliminary census figures for May 27.
[14] Estimate of total number based on number in rural communities only as compared with preceding year.
[15] November.
[16] Estimated by Basutoland Government agricultural official on the presumption that previous estimates are too high.
[17] Included unofficial estimate of 690,000 buffaloes.
[18] Estimate based on official figures in 1920 for 20 Provinces, which supported 63 percent of the cattle in China in 1914. No data available in 1920 for such important Provinces as Hupeh with 1,898,000 in 1914, Hunan with 2,192,000, Szechuan with 3,009,114, Kwantung with 2,288,000, and Kwangsi with 1,527,000.
[19] Estimate based on official figures in 1932 or 1933 for 22 Provinces, which supported 97 percent of the cattle in China in 1914. The official estimate excluding Turkistan, and Inner Mongolia for 1932 or 1933 was 22,333,000. Estimates for this territory and for Manchuria included with China, although some of it has recently been incorporated into Manchukuo.
[20] Comparable totals for number of countries indicated.
[21] Estimated totals for continents are as follows in millions of head for the 5-year average, 1909–13: North America, Central America, and West Indies, 74.9; South America, 80.3; Europe, excluding Russia, 103.3; Africa, 33.8; Asia, excluding Russia, 195.3; Oceania, 13.8; world including Russia, 562.

Bureau of Agricultural Economics; compiled from reports of United States Government representatives abroad, original official sources, and the International Institute of Agriculture unless otherwise stated.
Figures in parentheses interpolated. For later figures for individual countries see Cattle and Beef issue of Foreign Crops and Markets.

TABLE 319.—*Cattle and calves: Receipts at principal public stockyards and at public stockyards, 1924–33*

CATTLE

Year	Chicago	Denver	East St. Louis	Fort Worth	Kansas City	Omaha	South St. Joseph	South St. Paul	Sioux City	Total 9 markets [1]	All other stockyards reporting	Total all stockyards reporting [1]
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
1924	3, 203	572	1, 034	1, 049	2, 471	1, 759	602	790	798	12, 278	4, 895	17, 173
1925	3, 023	527	1, 038	1, 060	2, 409	1, 593	609	995	845	12, 098	5, 019	17, 117
1926	3, 257	473	1, 074	944	2, 183	1, 692	563	1, 180	885	12, 251	4, 783	17, 034
1927	2, 872	577	1, 004	956	2, 070	1, 463	541	955	747	11, 186	5, 072	16, 258
1928	2, 505	590	900	886	1, 859	1, 423	511	917	750	10, 342	4, 847	15, 189
1929	2, 388	556	832	762	1, 836	1, 444	500	879	778	9, 974	4, 363	14, 337
1930	2, 239	505	820	638	1, 802	1, 485	459	779	774	9, 501	4, 297	13, 798
1931	2, 287	440	792	598	1, 665	1, 570	433	811	769	9, 364	4, 122	13, 486
1932	2, 006	365	709	444	1, 570	1, 333	360	690	545	8, 022	3, 809	11, 831
1933	2, 067	348	727	417	1, 443	1, 417	399	835	774	8, 427	3, 920	12, 347

CALVES

Year	Chicago	Denver	East St. Louis	Fort Worth	Kansas City	Omaha	South St. Joseph	South St. Paul	Sioux City	Total 9 markets [1]	All other stockyards reporting	Total all stockyards reporting [1]
1924	794	59	350	343	572	104	117	534	38	2, 910	3, 613	6, 523
1925	848	60	406	310	549	116	125	641	52	3, 108	3, 842	6, 950
1926	755	56	452	241	433	123	116	730	84	2, 991	3, 846	6, 837
1927	710	63	444	330	400	98	99	627	62	2, 834	3, 671	6, 505
1928	762	77	415	325	351	94	87	573	63	2, 746	3, 543	6, 289
1929	672	68	391	327	342	102	89	546	61	2, 601	3, 502	6, 103
1930	557	88	383	331	364	120	100	559	82	2, 586	3, 782	6, 368
1931	547	64	379	243	292	120	76	603	82	2, 406	3, 723	6, 129
1932	447	59	356	209	284	120	77	544	49	2, 145	3, 356	5, 501
1933	440	71	392	223	276	120	84	515	56	2, 178	3, 409	5, 587

[1] Rounded totals of the complete figures.

Bureau of Agricultural Economics; compiled from data of the livestock and meat reporting service of the Bureau.
Receipts, 1900–23 are available in 1924 Yearbook, p. 840, table 435.

TABLE 320.—*Beef cattle and veal calves: Average price per 100 pounds received by producers, United States, 1924–33*

BEEF CATTLE

Year	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Weighted average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924	5. 33	5. 41	5. 58	5. 77	5. 91	5. 76	5. 63	5. 65	5. 51	5. 44	5. 40	5. 32	5. 55
1925	5. 61	5. 66	6. 15	6. 50	6. 44	6. 43	6. 54	6. 55	6. 25	6. 26	6. 11	6. 17	6. 23
1926	6. 29	6. 39	6. 62	6. 64	6. 55	6. 55	6. 43	6. 27	6. 46	6. 40	6. 29	6. 37	6. 43
1927	6. 42	6. 57	6. 79	7. 12	7. 15	7. 06	7. 11	7. 18	7. 39	7. 52	7. 96	8. 29	7. 23
1928	8. 45	8. 70	8. 81	8. 88	9. 03	9. 07	9. 16	9. 45	9. 93	9. 62	9. 21	8. 90	9. 12
1929	8. 91	8. 83	9. 09	9. 45	9. 64	9. 67	9. 75	9. 55	9. 16	8. 85	8. 57	8. 43	9. 15
1930	8. 66	8. 63	8. 72	8. 60	8. 32	8. 14	7. 06	6. 22	6. 58	6. 50	6. 39	6. 33	7. 46
1931	6. 38	5. 98	5. 98	5. 95	5. 61	5. 21	5. 11	5. 05	4. 96	4. 72	4. 76	4. 32	5. 31
1932	4. 29	4. 08	4. 25	4. 19	3. 91	3. 81	4. 52	4. 35	4. 31	3. 91	3. 73	3. 41	4. 07
1933	3. 28	3. 31	3. 42	3. 54	3. 95	4. 04	3. 97	3. 79	3. 61	3. 50	3. 32	3. 12	3. 63

VEAL CALVES

Year	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Weighted average
1924	8. 35	8. 50	8. 41	8. 31	8. 12	7. 90	7. 87	7. 93	8. 08	8. 21	7. 89	7. 83	8. 11
1925	8. 49	8. 85	9. 21	8. 80	8. 35	8. 18	8. 65	8. 81	9. 07	9. 52	9. 16	9. 17	8. 85
1926	9. 43	9. 85	9. 74	9. 45	8. 92	9. 65	9. 47	9. 54	10. 06	10. 29	9. 54	9. 44	9. 61
1927	9. 75	10. 10	10. 10	9. 90	9. 37	9. 46	9. 82	10. 37	10. 78	11. 04	10. 67	10. 71	10. 15
1928	10. 87	11. 30	11. 33	11. 18	11. 17	11. 55	11. 86	12. 28	13. 03	12. 61	11. 99	11. 81	11. 72
1929	12. 20	12. 17	12. 51	12. 09	12. 10	12. 05	12. 40	12. 38	12. 51	12. 15	11. 79	11. 68	12. 17
1930	11. 84	11. 69	11. 24	10. 73	9. 68	98. 3	9. 19	8. 78	9. 20	9. 30	8. 84	8. 48	9. 91
1931	8. 61	8. 20	7. 66	7. 38	7. 15	6. 81	6. 66	6. 75	6. 95	6. 58	6. 02	5. 59	7. 04
1932	5. 62	5. 80	5. 69	5. 04	4. 67	4. 63	5. 00	4. 93	5. 12	4. 75	4. 47	4. 16	5. 00
1933	4. 12	4. 75	4. 57	4. 36	4. 50	4. 51	4. 62	4. 75	4. 96	4. 84	4. 66	4. 20	4. 61

Bureau of Agricultural Economics. Based on reports of special price reporters. Monthly prices of beef cattle, by States, weighted by number of cattle Jan. 1 to obtain a price for the United States; monthly prices of veal valves, by States, weighted by number of milch cows Jan. 1 to obtain a price for the United States; yearly price obtained by weighting monthly prices by Federal inspected slaughter.

TABLE 321.—*Cattle and calves: Receipts and stocker and feeder shipments at United States public stockyards, 1924–33*

RECEIPTS, CATTLE

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
1924	1,388	1,041	1,084	1,161	1,317	1,172	1,254	1,398	1,938	2,096	1,796	1,528	17,173
1925	1,353	1,056	1,273	1,201	1,139	1,160	1,398	1,632	1,592	2,126	1,717	1,470	17,117
1926	1,314	1,065	1,233	1,146	1,277	1,279	1,279	1,421	1,827	2,030	1,836	1,327	17,034
1927	1,327	1,080	1,172	1,107	1,348	1,185	1,089	1,494	1,482	2,008	1,749	1,217	16,258
1928	1,272	1,045	966	1,119	1,188	1,057	1,158	1,308	1,669	1,913	1,419	1,075	15,189
1929	1,100	814	953	1,146	1,097	977	1,166	1,156	1,572	1,787	1,405	1,104	14,337
1930	1,155	908	1,045	1,066	984	996	1,012	1,062	1,512	1,677	1,180	1,202	13,799
1931	1,040	878	1,017	1,057	1,027	1,017	1,035	1,302	1,279	1,531	1,312	991	13,486
1932	960	869	897	897	919	870	888	1,125	1,232	1,346	1,039	789	11,831
1933	908	773	758	843	1,030	985	1,008	1,173	1,178	1,587	1,203	901	12,347

RECEIPTS, CALVES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1924	500	415	472	590	574	502	544	536	628	640	567	555	6,523
1925	516	473	588	626	597	586	572	612	566	663	565	586	6,950
1926	526	486	578	564	616	592	541	576	570	644	625	519	6,837
1927	504	476	571	567	607	547	457	571	507	627	598	473	6,505
1928	499	471	499	566	610	501	492	521	522	629	544	435	6,289
1929	479	381	497	606	563	475	499	463	531	620	538	451	6,103
1930	484	418	502	578	533	464	499	543	596	700	517	534	6,368
1931	468	425	518	560	524	522	453	519	518	606	554	462	6,129
1932	416	414	480	478	478	468	403	481	457	550	504	372	5,501
1933	416	364	413	453	528	465	448	496	474	592	496	442	5,587

STOCKER AND FEEDER SHIPMENTS, CATTLE

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1924	231	165	167	230	267	191	161	293	556	724	497	288	3,770
1925	194	163	213	254	198	143	234	347	409	681	449	308	3,593
1926	207	164	171	190	201	158	188	240	495	648	521	273	3,456
1927	187	162	182	184	215	157	128	252	384	626	548	278	3,303
1928	215	175	154	236	263	165	175	312	525	704	420	218	3,562
1929	159	106	146	266	266	157	159	246	394	673	459	219	3,250
1930	201	173	176	219	172	108	99	130	368	570	375	267	2,858
1931	189	130	126	156	135	100	108	231	348	495	384	207	2,609
1932	108	96	108	116	100	90	136	247	347	392	296	168	2,203
1933	126	107	87	127	153	129	96	183	233	444	310	129	2,124

STOCKER AND FEEDER SHIPMENTS, CALVES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1924	11	5	8	9	8	10	9	13	24	39	51	21	208
1925	12	13	17	17	18	11	9	13	18	37	40	25	230
1926	18	13	13	13	17	11	11	12	26	45	49	28	256
1927	18	13	18	19	20	12	10	19	22	49	67	41	306
1928	18	19	19	18	21	19	21	24	37	94	76	35	403
1929	19	12	16	26	28	19	14	20	29	85	97	37	401
1930	32	28	30	36	28	21	10	20	75	121	103	64	568
1931	33	18	20	19	18	12	16	30	42	86	103	38	435
1932	22	14	18	22	18	15	21	33	43	86	81	42	416
1933	27	22	15	25	40	20	15	30	29	83	71	46	423

Bureau of Agricultural Economics. Compiled from data of the livestock and meat reporting service of the Bureau. Earlier data in 1930 Yearbook, p. 829, table 353.

TABLE 322.—*Feeder cattle, inspected: Shipments from public stockyards, 1924–33*

Origin and destination	Calendar year									
	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
Market origin:										
Chicago, Ill	246	230	245	167	171	157	132	173	141	128
Denver, Colo	346	281	288	328	403	334	327	228	165	169
East St. Louis, Ill	136	113	110	97	90	99	86	95	103	81
Fort Worth, Tex	160	196	233	273	285	237	190	153	116	86
Indianapolis, Ind	49	55	44	29	31	27	27	25	24	25
Kansas City, Kans	901	825	706	671	684	680	650	635	595	504
Louisville, Ky	21	27	19	34	24	17	10	7	23	25
Oklahoma City, Okla	56	78	69	89	80	85	70	64	70	74
Omaha, Nebr	476	390	379	329	355	398	405	385	330	332
Sioux City, Iowa	249	247	300	237	274	286	282	229	171	248
South St. Joseph, Mo	85	71	56	51	60	61	90	88	73	86
South St. Paul, Minn	173	208	291	203	198	209	153	138	95	102
Wichita, Kans	193	200	152	198	205	164	217	173	116	117
All other inspected	185	177	195	268	344	326	312	301	290	289
Total	3,276	3,098	3,087	2,974	3,204	3,080	2,951	2,694	2,312	2,266
State destination:										
Colorado	166	131	169	180	210	184	156	113	80	76
Illinois	439	437	435	290	310	313	275	321	364	264
Indiana	137	150	167	136	113	106	94	132	133	94
Iowa	570	487	577	431	499	538	506	483	434	525
Kansas	473	468	378	423	478	463	454	351	271	274
Kentucky	25	41	43	86	59	46	24	27	34	36
Michigan	47	49	41	36	41	34	21	24	26	24
Minnesota	31	36	32	25	29	42	41	28	21	21
Missouri	285	277	255	267	229	203	192	218	186	198
Nebraska	565	427	374	386	474	447	561	419	264	310
Ohio	90	97	102	93	70	83	52	93	91	63
Oklahoma	108	168	159	170	143	155	128	103	97	92
Pennsylvania	24	31	30	31	70	44	37	39	57	62
South Dakota	57	38	32	50	64	75	91	45	26	32
Texas	128	116	151	160	196	155	123	98	71	52
Wisconsin	23	26	29	12	12	20	14	11	7	8
All other	108	119	113	198	207	172	182	189	150	135
Total	3,276	3,098	3,087	2,974	3,204	3,080	2,951	2,694	2,312	2,266

Bureau of Agricultural Economics. Compiled from Bureau of Animal Industry inspection records.

TABLE 323.—*Cattle, choice steers for chilled beef: Average price per 100 pounds, by months at Buenos Aires, 1924–33*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924	3.19	3.40	3.61	3.50	3.56	3.76	4.51	4.93	5.15	5.95	5.62	5.42	4.38
1925	5.54	5.54	6.20	6.20	6.51	6.48	6.54	6.72	6.91	6.25	5.66	5.32	6.16
1926	5.40	5.42	5.27	5.39	5.52	5.24	5.58	5.70	5.45	4.63	4.06	4.21	5.16
1927	4.21	4.73	4.63	5.03	4.81	5.15	5.95	6.55	6.84	7.13	6.34	5.81	5.60
1928	6.08	6.01	6.24	6.47	6.68	7.01	6.64	6.66	6.63	6.16	5.50	5.49	6.30
1929	5.89	5.90	5.85	5.87	5.87	6.03	6.09	6.06	6.09	6.80	6.02	5.92	6.03
1930	5.72	5.35	5.45	5.71	5.57	5.43	5.24	5.27	5.16	4.84	4.38	3.67	5.15
1931	3.50	3.73	4.21	3.97	3.69	3.68	3.58	3.59	3.22	2.52	2.76	2.34	3.40
1932	2.20	2.30	2.18	2.18	2.25	2.28	2.29	2.27	2.13	1.80	1.69	1.58	2.10
1933	1.49	1.83	1.89	2.05	2.60	2.75	3.20	3.15	3.35	3.23	3.14	2.61	2.61

Bureau of Agricultural Economics. Compiled from Review of the River Plate, as follows: 1924–27, average of Thursday quotations; 1928–33, average of high and low for weeks ended Saturday. Prior to May 1924, originally quoted on basis of price per head supplemented by price per pound of dressed carcass weight. Calculations assume average dressed weight of 730 pounds or live weight of 1,259 pounds. Beginning May 1924, prices were quoted in live weight per pound. Converted at average monthly rates of exchange as given in Federal Reserve Bulletin.

Table 324.—*Cattle and calves: Shipments, slaughter, value of production, and income by States, 1932*

State and division	Shipments and local slaughter				Inshipments, stocker, feeding, breeding, and dairy		Farm slaughter				Value of amount consumed on farms	Receipts from sales	Gross income	Value of production
	Cattle		Calves				Cattle		Calves					
	Head	Total weight	Head	Total weight	Head	Total weight	Head	Total weight	Head	Total weight				
	Thousands	*1,000 pounds*	*Thousands*	*1,000 pounds*	*Thousands*	*1,000 pounds*	*Thousands*	*1,000 pounds*	*Thousands*	*1,000 pounds*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Maine	36	29,220	54	5,700	1	800	4	2,800	8	1,000	37	1,857	1,894	1,862
New Hampshire	27	22,100	32	3,290	5	4,100	1	800	2	260	10	1,011	1,021	898
Vermont	56	46,320	129	13,050	9	7,380	7	4,900	11	1,485	75	2,594	2,669	2,327
Massachusetts	48	39,300	70	7,050	29	24,650	2	1,600	3	330	37	587	624	1,054
Rhode Island	6	4,980	10	1,000	4	3,320	1	800	1	120	15	100	115	181
Connecticut	28	23,040	64	6,650	11	9,130	1	750	2	260	20	1,094	1,114	1,293
New York	220	188,900	616	91,800	16	13,200	25	21,250	60	9,360	527	12,123	12,650	14,342
New Jersey	30	27,000	70	10,430	20	17,000	1	900	3	447	23	471	494	1,305
Pennsylvania	211	184,625	465	69,750	92	69,000	40	34,000	46	6,440	817	11,251	12,068	12,370
North Atlantic	662	565,485	1,510	208,720	187	148,580	82	67,800	136	19,702	1,561	31,088	32,649	35,632
Ohio	268	227,800	397	63,520	94	57,340	26	22,100	25	4,000	714	12,078	12,792	14,853
Indiana	394	354,600	293	43,950	175	116,375	10	7,750	10	2,500	291	14,313	14,604	16,402
Illinois	745	692,850	432	61,130	381	270,510	18	14,850	28	5,600	546	24,509	25,055	28,392
Michigan	204	168,300	338	52,390	33	18,810	30	24,000	65	10,400	601	10,083	10,684	11,284
Wisconsin	412	408,300	1,038	119,370	10	7,300	30	27,000	121	15,125	456	20,700	21,156	19,121
East North Central	2,023	1,851,850	2,498	340,360	693	470,335	114	95,700	249	37,625	2,608	81,683	84,291	90,052
Minnesota	626	534,330	689	87,824	92	60,260	49	41,160	45	9,900	1,464	24,293	25,757	28,175
Iowa	1,594	1,509,300	302	47,300	543	366,525	30	25,200	30	6,000	1,213	58,313	59,526	63,439
Missouri	922	828,520	450	90,000	346	211,060	18	13,770	12	3,600	394	31,504	31,898	32,962
North Dakota	290	242,150	84	11,760			35	27,300	20	4,000	802	8,832	9,634	12,035
South Dakota	332	285,520	48	11,040	27	18,090	25	21,500	15	4,500	894	11,740	12,634	17,637
Nebraska	1,175	1,084,750	120	34,650	603	422,100	17	14,280	33	9,900	977	34,529	35,506	42,939
Kansas	1,278	1,175,760	172	44,720	546	340,704	15	12,150	20	7,100	621	36,685	37,306	43,717
West North Central	6,217	5,660,330	1,865	327,294	2,157	1,418,739	189	155,360	175	45,000	6,365	205,896	212,261	240,904
North Central	8,240	7,512,180	4,363	667,654	2,850	1,889,074	303	251,060	424	82,625	8,973	287,579	296,552	330,956
Delaware	4	3,200	20	2,700					2	270	5	344	349	382
Maryland	26	22,100	109	14,715	10	7,000	5	4,250	6	810	87	1,748	1,835	1,968
Virginia	141	125,610	128	18,900	14	7,700	9	6,840	10	1,350	142	6,074	6,216	6,640
West Virginia	85	73,500	42	7,350	1	635	10	8,250	15	2,625	175	4,008	4,183	4,444

North Carolina	60	42,000	42	5,250	----	----	15	9,000	20	2,500	174	2,390	2,564	3,178
South Carolina	28	19,600	32	4,000	----	----	8	5,600	8	1,000	59	1,085	1,144	1,372
Georgia	84	37,800	60	9,600	4	1,800	20	9,000	45	7,875	142	1,924	2,066	2,467
Florida	39	18,525	27	3,105	1	700	10	4,750	8	920	40	891	931	1,148
South Atlantic	467	342,335	460	65,620	30	17,835	77	47,690	114	17,350	824	18,464	19,288	21,599
Kentucky	208	174,300	176	27,100	45	31,500	8	6,000	8	1,760	131	7,207	7,338	8,152
Tennessee	187	152,940	109	15,260	22	15,400	6	4,350	11	2,750	95	5,793	5,888	6,854
Alabama	107	56,175	43	6,450	3	1,200	10	4,500	15	2,625	74	1,872	1,946	2,622
Mississippi	173	103,800	63	9,450	9	4,500	12	6,480	15	2,400	75	2,937	3,012	3,590
Arkansas	82	50,850	42	7,350	4	2,000	14	6,860	25	5,250	118	2,041	2,159	3,113
Louisiana	122	73,200	29	4,060	15	5,250	15	7,050	15	2,700	164	2,823	2,987	3,670
Oklahoma	562	429,930	132	33,000	205	138,375	25	17,500	35	8,750	479	11,204	11,683	15,456
Texas	1,088	859,520	776	217,280	167	121,910	62	40,300	88	24,640	1,100	34,363	35,463	42,237
South Central	2,529	1,900,715	1,370	319,950	470	320,135	152	93,040	212	50,875	2,236	68,240	70,476	85,694
Montana	248	223,200	55	11,000	26	19,500	17	14,620	18	4,500	456	8,454	8,910	11,696
Idaho	126	113,400	28	5,040	10	7,000	10	7,500	16	2,560	111	4,171	4,282	4,864
Wyoming	198	161,520	20	6,380	17	11,050	9	7,425	3	990	260	6,429	6,689	7,868
Colorado	474	401,050	87	23,925	110	85,800	10	7,500	13	3,900	277	15,797	16,074	15,899
New Mexico	282	197,400	170	51,000	76	48,640	9	6,075	11	3,300	276	8,235	8,511	9,111
Arizona	197	134,724	64	17,280	34	20,400	6	3,912	6	1,500	158	5,101	5,259	6,171
Utah	73	68,250	21	4,200	6	4,500	5	4,250	10	2,000	129	2,747	2,876	2,976
Nevada	61	56,900	7	1,540	3	2,400	4	3,000	3	660	116	2,566	2,682	2,336
Washington	75	67,500	73	13,140	8	6,400	10	7,500	46	7,590	213	3,805	4,018	4,679
Oregon	108	104,760	45	9,000	3	2,250	13	10,140	36	5,400	178	5,442	5,620	6,477
California	535	501,700	365	86,550	258	199,434	15	13,200	30	6,300	491	18,095	18,586	17,424
Western	2,377	2,030,404	935	229,055	551	407,374	108	85,122	192	38,700	2,665	80,842	83,507	89,501
United States	14,275	12,351,119	8,638	1,490,999	4,088	2,782,998	722	544,712	1,078	209,252	16,259	486,213	502,472	563,382

Bureau of Agricultural Economics. Estimates of Division of Crop and Livestock Estimates and are preliminary. The figures on income as shown in tables 459 and 460 are computed from the data shown in this table. The difference between gross income and value of production arises from the fact that in computing value of production allowance is made for changes in inventory numbers between the beginning and end of the year, while in computing incomes these changes are not used.

TABLE 325.—*Cattle and calves: Average price per 100 pounds at Chicago, by months, beef steers and veal calves, 1924–33*

BEEF STEERS [1]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924	8.99	8.81	9.17	9.52	9.59	9.28	9.31	9.53	9.52	9.57	8.90	8.71	9.24
1925	8.97	9.15	9.93	9.99	9.90	10.34	11.28	11.10	11.04	10.80	10.16	9.72	10.16
1926	9.48	9.42	9.42	9.11	9.07	9.51	9.44	9.30	10.00	10.00	9.48	9.43	9.47
1927	9.70	9.81	10.20	10.51	10.68	11.12	11.78	12.02	12.63	13.43	13.57	13.08	11.36
1928	13.67	13.15	12.83	13.01	13.19	13.86	15.11	15.30	15.91	14.61	13.84	12.86	13.91
1929	12.51	11.92	12.68	13.52	13.67	14.10	14.59	14.22	13.92	13.81	13.00	12.74	13.43
1930	12.62	12.46	12.33	11.88	11.15	10.59	9.42	9.48	10.95	10.64	10.47	10.17	10.95
1931	9.43	8.36	8.40	7.82	7.30	7.43	7.62	8.53	8.29	8.38	8.53	7.11	8.06
1932	6.61	6.21	6.31	6.35	6.04	6.66	7.90	7.88	7.91	7.09	6.29	5.44	6.70
1933	4.95	4.80	5.04	4.96	5.64	5.79	6.01	5.88	5.75	5.53	5.13	5.17	5.42

VEAL CALVES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1924	11.08	10.54	9.75	9.03	9.30	8.74	9.48	10.63	10.72	10.10	9.02	9.97	9.86
1925	10.72	11.94	11.24	9.49	9.42	9.56	10.91	11.94	12.18	11.19	10.60	11.30	10.87
1926	12.18	12.43	12.06	9.91	11.04	11.09	11.38	12.46	12.59	11.80	11.09	11.31	11.61
1927	12.20	12.40	11.54	10.90	11.07	11.68	13.32	14.75	15.94	14.42	13.48	13.09	12.90
1928	13.70	15.04	13.75	13.02	13.95	13.24	14.84	16.68	17.36	14.94	14.22	13.94	14.56
1929	15.83	14.74	15.50	14.43	13.39	14.22	15.30	15.81	16.64	13.76	13.70	13.82	14.76
1930	14.80	12.66	11.96	10.55	11.36	11.03	11.37	11.98	11.83	11.33	9.53	9.77	11.51
1931	10.62	9.26	7.98	8.12	8.35	8.48	7.81	9.32	9.28	7.75	6.56	6.40	8.33
1932	7.56	7.52	6.41	5.44	5.70	6.06	6.10	6.80	7.06	5.48	5.09	5.26	6.21
1933	5.57	6.49	5.60	5.18	5.72	5.24	5.94	6.69	7.12	6.47	5.42	5.16	5.88

[1] Western steers not included.

Bureau of Agricultural Economics.
Beef-steer prices are the weighted average price of all grades of beef steers sold out of first hands at Chicago. Veal-calf prices from the livestock and meat reporting service of the Bureau on Medium to Choice grades prior to July 1, 1927, and subsequent prices on Good and Choice grades.
Earlier data in 1932 Yearbook, p. 777.

TABLE 326.—*Cattle and calves: Annual slaughter under Federal inspection, 1907–33, estimated equivalent of Federal inspection, 1900–1906, and estimated total slaughter (including farm) in United States, 1900–1933* [1]

Year	Cattle		Calves		Year	Cattle		Calves	
	Federally inspected	Total [2]	Federally inspected	Total [2]		Federally inspected	Total [2]	Federally inspected	Total [2]
	Thousands	*Thousands*	*Thousands*	*Thousands*		*Thousands*	*Thousands*	*Thousands*	*Thousands*
1900	5,801	10,242			1917	10,350	13,724	3,143	7,031
1901	6,312	11,088			1918	11,829	15,750	3,456	7,514
1902	6,465	11,697			1919	10,091	14,838	3,969	8,445
1903	6,755	12,463			1920	8,609	13,885	4,058	8,455
1904	6,702	12,099			1921	7,608	12,271	3,808	7,771
1905	7,259	12,649			1922	8,678	13,148	4,182	8,363
1906	7,541	12,944			1923	9,163	13,883	4,500	8,824
1907	7,633	13,287	2,024	6,211	1924	9,593	14,400	4,935	9,466
1908	7,279	12,852	1,958	6,048	1925	9,853	14,706	5,353	10,099
1909	7,714	13,611	2,189	6,516	1926	10,180	14,971	5,153	9,542
1910	7,808	13,541	2,238	6,553	1927	9,520	14,000	4,876	9,030
1911	7,619	12,958	2,184	6,264	1928	8,467	12,452	4,680	8,667
1912	7,253	11,979	2,278	6,348	1929	8,324	12,241	4,489	8,313
1913	6,978	11,478	1,902	5,285	1930	8,170	12,168	4,595	8,532
1914	6,757	11,004	1,697	4,661	1931	8,108	12,156	4,717	8,792
1915	7,153	10,822	1,819	4,640	1932	7,625	11,895	4,494	8,650
1916	8,310	12,027	2,367	5,774	1933	8,655		4,907	

[1] Federal Meat Inspection Act effective Oct. 1, 1906.
[2] Subject to revision.

Bureau of Animal Industry and Bureau of Agricultural Economics.
Data for years 1880–99 last printed in 1933 Yearbook.

TABLE 327.—*Cattle and calves: Slaughter in specified countries, 1924–33*

Year	United States Federally inspected	Canada total	Argentina, including chilling, freezing, salting, and canned meat works [1]	Uruguay, excluding farm [2]	Australia total	New Zealand total [3]
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
1924	14,528	1,864	4,321	1,173	2,505	573
1925	15,206	1,921	3,871	1,233	2,434	550
1926	15,333	1,902	3,510	1,293	2,160	519
1927	14,396	1,993	3,718	1,239	2,189	636
1928	13,147	1,949	3,258	1,272	2,200	806
1929	12,813	1,953	3,024	1,375	1,947	811
1930	12,765	1,904	2,987	1,607	1,787	894
1931	12,825	1,702	2,507	1,102	1,751	938
1932	12,117	1,669	2,381	916	(4)	1,019
1933 [5]	13,562	(6)	2,527	----------	(4)	----------

[1] Including municipal and private slaughterhouses, the figures were as follows, in thousands: 1929, 6,138; 1930, 5,966; 1931, 5,383. The numbers killed in freezing and chilling plants alone were as follows, in thousands: 1929, 2,792; 1930, 2,679; 1931, 2,297; 1932, 2,214; 1933, 2,350.
[2] Slaughtering in freezing and chilling plants alone was as follows, in thousands: 1929, 853; 1930, 1,108; 1931, 901; 1932, 754; 1933, 816.
[3] For years beginning Apr. 1.
[4] Slaughter for export only was as follows in thousands: 1929, 471; 1930, 429; 1931, 425; 1932, 397.
[5] Preliminary estimate.
[6] Inspected slaughter, only, was as follows in thousands: 1929, 1,117; 1930, 978; 1931, 963; 1932, 937; 1933, 1,092.

Bureau of Agricultural Economics; compiled from official sources and cabled reports from agricultural representatives abroad.

TABLE 328.—*Beef: Stocks in cold-storage warehouses and meat-packing establishments, United States, 1924–33*

Kind and year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
Beef, frozen:												
1924	82,984	79,944	76,769	68,075	52,941	41,784	37,028	29,435	29,135	28,599	45,857	76,731
1925	114,034	111,947	101,599	87,684	67,271	46,887	36,452	26,970	22,879	19,755	27,008	50,436
1926	59,850	55,705	51,498	43,528	32,372	26,649	23,997	23,509	21,311	25,267	38,079	59,603
1927	72,352	67,431	60,659	50,945	39,712	28,719	23,261	18,552	17,241	19,456	26,696	45,567
1928	54,968	50,673	44,017	37,625	28,253	20,654	17,256	18,896	17,603	22,463	41,635	60,189
1929	77,051	72,117	67,486	60,664	51,442	39,878	35,759	31,085	32,122	38,996	51,902	70,390
1930	77,230	72,692	69,800	64,146	57,273	49,913	46,819	45,830	42,433	43,515	47,221	54,894
1931	55,649	52,130	47.334	41,509	34,082	31,195	28,842	25,211	24,061	20,861	20,871	25,364
1932	37,812	36,147	35,663	31,377	26,837	22,429	17,856	14,975	12,943	14,139	23,324	27,843
1933	29,279	26,521	23.475	21,541	19,606	18,954	23,164	27,972	33,160	35,261	41,816	50,706
Beef, cured and in process of cure:												
1924	22,593	22,711	23,238	25,199	25,482	24,285	22,390	20,377	19,771	18,939	21,387	23,508
1925	28,930	28,758	29,210	28,634	28,952	27,731	25,102	22,704	22,335	20,964	20,473	23,128
1926	25,146	24,833	26,192	27,253	27,606	25,930	24,691	22,539	20,386	20,983	23,119	26,374
1927	28,521	27,823	27,361	26,214	23,216	21,694	20,495	17,170	16,205	16,422	17,220	19,778
1928	21,979	20,978	19,732	19,631	17,941	16,558	14,982	13,546	13,462	14,760	16,401	19,444
1929	21,862	21,873	21,285	20,943	19,272	17,437	16,296	14,845	15,892	17,438	20,157	23,054
1930	26,653	26,328	25,798	24,597	23,347	21,643	20,072	18,761	17,322	16,508	16,641	18,498
1931	19,636	20,268	20,288	19,602	19,068	18,253	16,706	15,844	14,989	14,310	13,536	13,794
1932	15,387	15,138	15,444	14,969	14,389	13,226	12,053	11,744	11,433	11,770	12,712	13,186
1933	13,591	13,029	12,540	12,240	11,052	11,584	11,972	13,851	15,286	15,937	17,417	19,304

Bureau of Agricultural Economics. Compiled from reports made by cold-storage establishments.

TABLE 329.—*Beef and beef products: International trade, average 1925–29, annual 1930–32*

Country	Average, 1925–29 Exports	Average, 1925–29 Imports	1930 Exports	1930 Imports	1931 Exports	1931 Imports	1932 [1] Exports	1932 [1] Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
Argentina	1,552,601	93	1,114,480	66	1,115,653	112	1,054,298	30
Uruguay	287,281	0	376,314	0	195,823	0	204,101	0
Australia [2]	284,476	1,711	224,986	863	214,821	4,765	252,998	498
Netherlands	237,540	159,721	179,228	137,113	148,062	130,890	55,047	72,345
United States [3]	144,303	84,233	117,985	63,872	100,891	29,433	89,748	30,373
New Zealand	115,286	626	103,098	592	105,358	434	117,398	487
Brazil	109,765	7,221	232,362	5,794	150,182	2,289	89,114	183
Canada	42,516	1,867	10,016	3,784	7,809	502	6,942	559
Denmark	27,793	12,359	54,113	9,539	77,568	10,583	35,301	9,078
Union of South Africa	23,193	8,397	30,585	5,795	22,240	13,317	16,292	3,338
Poland	17,646	2,032	23,457	1,904	21,520	1,049	4,433	994
Rumania	8,324	[4] 471	715	285	8,659	274	2,674	357
Irish Free State	8,992	8,581	6,061	4,275	3,928	5,010	2,152	650
China	5,071	1,619	3,061	1,815	585	1,475	68	1,512
Hungary	4,834	207	4,222	38	4,408	31	3,135	17
Total	2,869,621	289,138	2,479,983	235,735	2,177,507	200,164	1,933,701	120,421
PRINCIPAL IMPORTING COUNTRIES								
United Kingdom	34,345	1,795,364	29,176	1,640,993	40,863	1,667,824	8,765	1,486,187
Germany	4,267	386,911	21,478	193,629	9,948	74,976	3,334	79,684
France	35,552	147,055	37,723	99,058	33,712	138,494	30,498	89,912
Belgium	37,959	122,165	19,651	88,944	14,909	103,985	6,685	52,251
Japan	0	68,201	0	69,888	0	74,426	0	47,904
Cuba	267	44,490	0	32,406	0	23,984	---------	---------
Italy	335	23,611	251	21,620	466	17,431	258	16,963
Sweden	8,759	19,664	9,333	16,430	6,190	16,981	5,177	14,237
Spain	55	16,785	41	12,715	25	19,422	28	24,683
Norway	1,880	14,365	1,585	9,963	1,574	10,904	4,537	4,168
British India	1,254	11,346	978	11,243	775	13,723	685	15,559
Philippine Islands	0	11,013	0	6,446	0	7,202	0	4,776
Czechoslovakia	464	8,165	248	6,347	37	7,845	10	937
British Malaya	682	6,958	728	6,940	560	6,173	---------	---------
Switzerland	799	6,373	626	6,892	559	6,907	131	7,844
Finland	89	5,235	89	4,341	474	2,580	33	2,933
Egypt	11	4,767	0	2,969	0	2,218	0	1,779
Chile	125	3,645	146	1,948	109	2,471	133	---------
Total	126,843	2,696,113	122,053	2,232,772	110,201	2,197,546	60,274	1,849,817

[1] Preliminary.
[2] Year ended June 30.
[3] The import figures include "canned beef and veal" as taken from reports of the Bureau of Animal Industry.
[4] 4-year average.

Bureau of Agricultural Economics; official sources.
This table includes fresh, pickled or salted, and canned beef, tallow, oleo oil, oleo stock, oleo stearin, and oleomargarine.

TABLE 330.—*Cattle-tick eradication: Progress and status of the work Dec. 1, 1933*

State	Quarantined counties on—		Released counties to Dec. 1, 1933			Released counties tick free on Nov. 1—				
	July 1, 1906	Dec. 1, 1933	Tick free	With 1 or more infested herds	Total counties released	1929	1930	1931	1932	1933
Alabama	67	0	66	1	67	63	64	67	67	66
Arkansas	75	0	64	11	75	45	53	55	60	64
California	15	0	15	0	15	15	15	15	15	15
Florida	67	14	44	9	53	30	33	41	46	44
Georgia	158	0	158	0	158	155	158	158	157	158
Kentucky	2	0	2	0	2	2	2	2	2	2
Louisiana	64	39	14	11	25	3	10	17	10	14
Mississippi	82	0	79	3	82	55	78	77	77	79
Missouri	4	0	4	0	4	4	4	4	4	4
North Carolina	73	0	73	0	73	73	70	73	73	73
Oklahoma	61	0	60	1	61	60	61	61	61	60
South Carolina	46	0	46	0	46	46	46	46	46	46
Tennessee	42	0	42	0	42	42	42	42	42	42
Texas	198	36	135	27	162	94	116	113	126	135
Virginia	31	0	31	0	31	30	31	30	31	31
Total	985	89	833	63	896	717	783	801	817	833

Bureau of Animal Industry.

TABLE 331.—*Hogs: Number on farms and farm value per head in the United States Jan. 1, 1900–1934*

Year	Number[1]	Farm value per head Jan. 1[2]	Year	Number[1]	Farm value per head Jan. 1[2]	Year	Number[1]	Farm value per head Jan. 1[2]
	Thousands	*Dollars*		*Thousands*	*Dollars*		*Thousands*	*Dollars*
1900 [3]	*62,868*		1912	55,700	8.46	1924	66,576	10.30
1900	52,600	5.28	1913	54,000	10.42	*1925* [3]	*50,854*	
1901	53,200	6.55	1914	51,800	10.99	1925	55,770	13.15
1902	46,800	7.43	1915	57,000	10.43	1926	52,085	15.66
1903	47,200	8.22	1916	59,700	8.88	1927	55,468	17.19
1904	49,500	6.50	1917	56,700	12.42	1928	61,772	13.17
1905	52,000	6.33	1918	61,200	20.65	1929	58,789	12.94
1906	54,600	6.53	1919	63,800	23.28	*1930* [3]	*56,288*	
1907	57,300	8.05	*1920* [3]	*59,346*		1930	55,301	13.46
1908	61,300	6.39	1920	60,159	20.00	1931	54,399	11.36
1909	57,000	6.92	1921	58,942	13.63	1932	58,988	6.13
1910 [3]	*58,186*		1922	59,849	10.58	1933	61,320	4.21
1910	49,300	9.69	1923	69,304	12.29	1934 [4]	55,976	4.16
1911	55,700	9.90						

[1] Figures for 1900–1919 are tentative revised estimates of the Bureau of Agricultural Economics.
[2] Data for 1900–1925 are an old series for all hogs as reported, adjusted on basis average relationship between the new and the old series for 1926–28. Old series was shown in 1928 Yearbook. Conversion factor was 1.057 (base was old series). Data for 1926–34 are a new series, referred to above, of average values by age and sex classification weighted by numbers in each class.
[3] Italic figures are from the census. Census dates were June 1, 1900; Apr. 15, 1910; Jan. 1, 1920 and 1925; Apr. 1, 1930. 1900, 1910, and 1930 include spring-born pigs.
[4] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 332.—*Hogs, including pigs: Number on farms and farm value per head, by States, Jan. 1, 1932–34*

State and division	Number			Farm value per head [1]		
	1932	1933	1934 [2]	1932	1933	1934
	Thousands	*Thousands*	*Thousands*	*Dollars*	*Dollars*	*Dollars*
Maine	53	55	52	9.30	7.00	6.30
New Hampshire	15	16	14	9.90	7.60	7.10
Vermont	32	34	29	7.70	5.80	6.00
Massachusetts	99	84	72	8.90	6.30	6.40
Rhode Island	5	5	5	8.00	6.80	7.40
Connecticut	25	25	22	9.20	6.60	6.80
New York	205	213	204	8.70	6.40	6.60
New Jersey	78	75	66	10.70	6.70	7.30
Pennsylvania	655	707	665	8.70	6.00	6.10
North Atlantic	1,167	1,214	1,129	8.85	6.20	6.34
Ohio	2,072	2,486	2,287	6.60	4.30	3.80
Indiana	2,953	3,573	3,573	6.80	4.50	3.70
Illinois	4,900	5,537	5,094	6.80	4.60	4.30
Michigan	661	773	711	6.90	4.80	4.10
Wisconsin	1,658	1,611	1,450	5.80	4.20	4.40
East North Central	12,244	13,980	13,115	6.63	4.50	4.05
Minnesota	3,884	3,496	3,216	6.40	4.50	4.50
Iowa	11,140	10,813	10,813	6.40	4.50	4.70
Missouri	4,100	4,674	4,253	5.60	3.80	3.50
North Dakota	751	638	434	5.50	3.60	3.60
South Dakota	1,950	2,048	1,229	5.50	4.00	4.10
Nebraska	5,334	4,534	4,307	6.00	4.30	4.50
Kansas	3,109	3,264	2,611	5.40	3.80	3.60
West North Central	30,268	29,467	26,863	6.04	4.21	4.33
North Central	42,512	43,447	39,978	6.21	4.31	4.24
Delaware	22	22	23	8.50	5.10	5.00
Maryland	160	176	181	7.50	4.90	4.70
Virginia	551	579	562	6.10	4.50	4.40
West Virginia	176	211	207	7.50	5.20	4.70
North Carolina	905	996	936	7.70	5.10	5.50
South Carolina	540	562	478	5.70	4.70	5.00
Georgia	1,390	1,376	1,362	5.00	3.40	3.60
Florida	508	513	477	3.60	2.70	3.20
South Atlantic	4,252	4,435	4,226	5.84	4.14	4.35
Kentucky	923	1,101	1,079	5.90	4.00	3.50
Tennessee	1,075	1,236	1,137	6.30	4.00	3.70
Alabama	957	1,053	948	5.40	4.20	4.10
Mississippi	878	1,010	990	5.30	3.50	3.50
Arkansas	909	1,100	990	5.20	3.50	3.20
Louisiana	679	672	632	6.50	4.10	3.90
Oklahoma	1,205	1,506	1,024	5.00	3.00	2.60
Texas	1,767	2,033	1,667	5.40	3.40	3.40
South Central	8,393	9,711	8,467	5.58	3.66	3.47
Montana	252	227	227	5.10	4.50	4.20
Idaho	324	308	277	5.00	3.40	3.20
Wyoming	123	98	78	5.40	3.40	3.70
Colorado	624	536	420	5.30	3.10	3.40
New Mexico	74	78	58	5.70	3.90	4.00
Arizona	23	24	17	5.90	4.10	4.10
Utah	85	76	68	5.10	3.90	4.10
Nevada	21	19	17	6.70	4.60	4.50
Washington	220	220	202	6.80	4.50	4.20
Oregon	246	221	177	6.50	4.30	4.20
California	672	706	635	6.50	4.30	4.30
Western	2,664	2,513	2,176	5.80	3.88	3.92
United States	58,988	61,320	55,976	6.13	4.21	4.16

[1] Sum of total value of subgroups (classified by age and sex), divided by total number and rounded to nearest dime for States. Division and United States averages not rounded. State figures are new weighted value series, not comparable to State figures previously published years prior to 1925.
[2] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 333.—*Hogs: Numbers in countries having 150,000 and over, averages 1921–25 and 1926–30, annual 1929–32*

Country	Date or month of estimates	Average		1929	1930	1931	1932
		1921–25 [1]	1926–30 [1]				
NORTH AND CENTRAL AMERICA AND WEST INDIES		*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
United States	Jan. 1	62,088	56,683	58,789	55,301	54,399	58,988
Canada	June	4,344	4,387	4,382	4,000	4,717	4,639
Mexico	do	[2] 1,125	2,816		[3] 2,728		
Honduras		(200)	298		298		
Salvador		(330)	335		[3] 335		
Cuba		(591)	591		591		
Dominican Republic	May	866	(1,020)				
Haiti		(170)	203	220	240	260	
Estimated total [4]		70,300	67,000				
SOUTH AMERICA							
Colombia		1,352	1,400		1,434		
Venezuela		512	(512)				
Ecuador		150	153	153			
Peru	February–April	429	[3] 689	[3] 689			
Bolivia		362	375	384	390	398	
Chile		255	[3] 331		[3] 331		
Brazil	September	[3 5] 16,169	(18,220)			[6] 18,220	21,615
Uruguay		278	[3] 308		[3] 308		
Argentina	Jan. 1 [7]	[3] 1,437	[3 8] 3,769		[3 8] 3,769		
Estimated total [4]		21,000	25,900				
EUROPE							
England and Wales	June	2,658	2,508	2,367	2,310	2,783	3,185
Scotland	do	167	165	142	143	162	165
Northern Ireland	do	134	206	192	216	236	220
Irish Free State	do	947	1,048	945	1,052	1,227	1,108
Norway [9]	do	216	303	289	339	317	304
Sweden	September	[8] 1,056	1,574	(1,570)	1,761	1,724	1,465
Denmark	July	2,314	3,741	3,618	4,872	5,453	[10] 4,886
Holland	May–June	1,519	[2] 2,018	(2,018)	2,018	[6] 2,434	[6] 2,244
Belgium	Jan. 1 [7]	1,081	1,159	1,139	1,237	1,250	1,235
France	do.[7]	5,302	5,942	6,017	6,102	6,329	6,398
Spain	do.[7]	4,500	5,024	[3 11] 4,773			5,102
Portugal		1,041	[3 12] 1,163				
Italy	May–April	2,630	3,086		[3] 3,322		
Switzerland	April	[3] 640	782		(926)	[3] 926	
Germany	Jan. 1 [7]	15,776	19,715	20,106	19,944	23,442	23,808
Austria	do.[7]	1,399	1,965		[3 8] 1,965		
Czechoslovakia	do.[7]	2,201	2,814	(2,900)	[3 11] 3,088	2,776	2,576
Hungary	April–July	2,424	2,503	2,582	2,362	2,715	2,361
Yugoslavia	Jan. 1	2,819	2,743	2,663	2,675	2,924	3,133
Greece	Jan. 1 [7]	390	422	419	[3] 276	335	423
Bulgaria	do.[7]	832	1,002				
Rumania	do.[7]	2,976	2,915	2,382	2,412	[6] 2,437	3,221
Poland	June	[13] 5,287	5,736	4,829	6,047	7,321	5,844
Lithuania	Jan. 1 [7]	1,486	1,189	1,060	944	1,207	1,338
Latvia	June	465	499	382	523	712	582
Estonia	July	299	317	279	290	323	303
Finland	September	378	404	380	395	446	414
Russia, European and Asiatic	Summer	17,680	21,040	20,900	13,600	14,400	11,600
Estimated total excluding Russia.[4]		61,000	71,100				
AFRICA							
French West Africa		151	210	241	242	240	
Angola-Portuguese West Africa	April	266	285	241			
Union of South Africa	August	888	888	820	963		
Madagascar	February	369	398	412	531		
Estimated total [4]		2,300	2,500				

See footnotes at end of table.

TABLE 333.—*Hogs: Number in countries having 150,000 and over, averages 1921–25 and 1926–30, annual 1929–32*—Continued

Country	Date or month of estimates	Average		1929	1930	1931	1932
		1921–25[1]	1926–30[1]				
ASIA		*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
India (Portuguese)		(250)	250				
China (including Turkistan, Manchuria, and Inner Mongolia).		[14] 70,600	(80,000)				[15] 95,000
Japan	Jan. 1 [7]	590	688	764	706	742	
Chosen	do.[7]	1,078	1,244	1,277	1,328	1,387	
Taiwan	do.[7]	1,302	1,619	1,718	1,754	1,750	
French Indo-China		2,767	2,587	2,782	2,808	2,860	
Siam	March	864	(864)				
Federated Malay States		59	96		166	190	
Straits Settlements		220	132	144	120	105	
Philippine Islands	Jan. 1 [7]	2,039	2,236	2,381	2,454	2,775	2,491
Dutch East Indies Outer Possessions.	do.[7]	783	842				
Estimated total excluding Russia.[4]		81,100	91,000				
OCEANIA							
Australia	Jan. 1 [7]	918	985	910	1,018	1,072	1,168
New Zealand	Jan. 1	396	525	557	488	476	513
Estimated total [4]		1,400	1,600				
Total countries reporting all periods:							
To 1931 (35) [16]		144,000	150,835	152,178	143,455	152,134	
To 1932 (27) [16]		137,360	143,777	144,648	135,867	144,392	144,612
Estimated world total including Russia.[4] [17]		254,800	280,140				

[1] Average for 5-year period if available, otherwise for any year or years within that period unless otherwise stated.
[2] Incomplete.
[3] Census.
[4] These totals include interpolations for a few countries not reporting each year and rough estimates for some others.
[5] Year 1920.
[6] Unofficial.
[7] Estimates of countries reporting as of December are considered as of Jan. 1 of following year, i.e. the figures for the number of hogs in France as of Dec. 31, 1928, have been placed in 1929 column, etc.
[8] June.
[9] Rural communities only.
[10] June 20.
[11] May.
[12] Year 1925.
[13] November.
[14] Estimate based on official figures for 1920 for 20 Provinces which supported over 50 percent of the number in China in 1914.
[15] Estimate based on official figures for 1932 or 1933 for 22 Provinces which supported over 99 percent of the number in China in 1914. The official estimate excluding Turkistan and Inner Mongolia in 1932 or 1933 was 94,395,000. Estimates for this territory and for Manchuria included with China, although some of it has recently been incorporated into Manchukuo.
[16] Comparable total for number of countries indicated in parenthesis.
[17] Estimated world production for the 5 years 1909–13 was as follows in thousands of head: North America, Central America, and West Indies, 62,500; South America, 23,500; Europe, excluding Russia, 71,800; Africa, 2,500; Asia, excluding Russia, 85,900; Oceania, 1,300; world including Russia, 267,800.

Bureau of Agricultural Economics; official estimates and International Institute of Agriculture unless otherwise stated.

Figures in parenthesis interpolated. For later figures see the Hog and Pork issue of Foreign Crops and Markets and the monthly issues of Hog and Pork Prospects.

TABLE 334.—*Hogs: Receipts at principal public stockyards and public stockyards, 1924–33*

Year	Chicago	Denver	East St. Louis	Fort Worth	Kansas City	Omaha	South St. Joseph	South St. Paul	Sioux City	Total 9 markets [1]	All other stockyards reporting	Total all stockyards reporting [1]
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
1924	10,443	569	4,580	392	2,933	3,978	2,234	3,751	3,732	32,613	22,801	55,414
1925	7,996	467	3,512	312	2,067	3,355	1,673	3,637	3,396	26,415	17,514	43,929
1926	7,093	497	3,536	217	2,036	2,647	1,462	3,451	2,475	23,413	16,359	39,772
1927	7,724	457	3,710	338	1,904	2,631	1,425	3,105	2,322	23,616	17,795	41,411
1928	8,539	567	4,036	432	2,391	3,179	1,724	2,902	2,754	26,525	20,002	46,527
1929	8,193	539	3,865	402	2,476	3,166	1,627	2,869	2,313	25,450	18,647	44,097
1930	7,870	512	3,459	279	2,015	3,363	1,446	2,759	2,317	24,021	16,753	40,774
1931	7,942	597	2,970	216	1,337	3,525	1,322	3,251	2,646	23,805	15,733	39,538
1932	6,602	652	2,626	255	1,356	3,078	1,226	2,600	1,955	20,351	14,677	35,028
1933 [2]	7,792	771	3,328	498	2,077	2,950	1,715	2,742	2,287	24,160	16,217	40,377

[1] Rounded totals of complete figures.
[2] Includes many pigs and sows received for sale on Government account, Aug. 23–Sept. 30, 1933.

Bureau of Agricultural Economics; compiled from data of the livestock and meat reporting service of the Bureau.
Receipts for 1900–23 are available in 1924 Yearbook, p. 902, table 500.

TABLE 335.—*Hogs: Receipts at United States public stockyards, 1924–33*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
1924	6,253	5,335	4,833	4,374	4,321	4,296	4,091	3,197	3,216	3,990	4,904	6,604	55,414
1925	6,105	4,558	3,528	3,247	3,283	3,507	2,798	2,549	2,741	3,390	3,843	4,380	43,929
1926	4,304	3,372	3,579	3,135	3,037	3,143	2,854	2,804	2,819	3,261	3,554	3,910	39,772
1927	4,252	3,308	3,754	3,142	3,613	3,775	3,046	3,042	2,565	3,039	3,666	4,209	41,411
1928	5,306	5,267	4,639	3,483	3,723	3,548	2,924	2,523	2,600	3,666	4,075	4,773	46,527
1929	5,133	4,000	3,436	3,582	3,431	3,275	3,297	2,964	3,089	3,701	3,933	4,256	44,097
1930	4,720	3,781	3,294	3,255	3,293	3,215	2,918	2,617	2,799	3,441	3,439	4,002	40,774
1931	4,652	3,704	3,207	3,067	2,938	2,854	2,511	2,454	2,727	3,462	3,752	4,210	39,538
1932	4,218	3,659	2,939	2,960	3,050	2,545	2,159	2,405	2,505	2,691	2,775	3,123	35,028
1933 [1]	3,388	2,700	2,638	2,798	3,143	3,361	2,871	3,924	6,494	2,521	3,207	3,332	40,377

[1] Includes many pigs and sows received for sale on Government account, Aug. 23–Sept. 30, 1933.

Bureau of Agricultural Economics. Compiled from data of the livestock and meat reporting service of the Bureau. Earlier data in 1930 Yearbook, p. 850, table 376.

TABLE 336.—*Hogs: Monthly average live weight at Chicago, 1924–25 to 1933–34*

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Average Oct.–Mar.[1]	Apr.	May	June	July	Aug.	Sept.	Average Apr.–Sept.[1]
	Lb.	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*
1924–25	235	220	214	220	222	229	223	235	236	238	249	256	253	244
1925–26	242	228	225	231	235	245	234	244	247	255	271	281	267	261
1926–27	232	217	220	226	229	240	227	239	243	248	257	265	261	252
1927–28	235	215	217	225	230	235	226	233	234	239	251	257	251	244
1928–29	247	238	231	228	228	238	235	241	239	247	257	265	259	251
1929–30	242	223	224	228	231	235	230	234	238	245	257	255	244	246
1930–31	227	221	226	235	237	242	231	240	240	251	258	256	240	248
1931–32	222	217	223	230	233	237	227	238	239	245	260	263	260	251
1932–33	241	231	229	233	236	246	236	251	250	253	257	258	251	253
1933–34	239	231	227	------	------	------	------	------	------	------	------	------	------	------

[1] Simple average.

Bureau of Agricultural Economics; livestock and meat reporting service.
Weighted average of packer and shipper purchases. Data for 1900–1924 are available in 1924 Yearbook, p. 909, table 506.

TABLE 337.—*Hogs: Average price per 100 pounds received by producers, United States, 1924–25 to 1933–34*

Year	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Weighted average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924–25	9.45	8.62	8.39	9.31	9.62	11.83	11.64	10.78	10.82	12.02	12.19	11.50	10.15
1925–26	11.16	10.66	10.51	10.99	11.76	11.65	11.49	11.97	12.80	12.69	11.66	12.07	11.55
1926–27	12.06	11.45	10.97	10.97	11.19	10.89	10.41	9.41	8.40	8.58	9.24	9.78	10.28
1927–28	10.16	8.99	8.14	7.80	7.61	7.48	7.75	8.82	8.70	9.64	10.01	11.17	8.59
1928–29	9.55	8.51	7.95	8.18	8.88	10.00	10.20	9 96	9.80	10.33	10.28	9.53	9.28
1929–30	9.10	8.54	8.53	8.80	9.48	9.57	9.17	8.99	9.10	8.38	8.51	9.44	8.95
1930–31	8.79	8.20	7.44	7.25	6.81	6.92	6.92	6.35	5.70	6.20	6.25	5.44	6.95
1931–32	4.70	4.36	3.76	3.76	3.53	3.90	3.58	2.96	2.82	4.23	4.06	3.78	3.78
1932–33	3.25	3.05	2.73	2.68	2.94	3.22	3.21	3.88	3.96	3.98	3.79	3.73	3.36
1933–34	4.17	3.70	2.92	------	------	------	------	------	------	------	------	------	--------

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by number of hogs Jan. 1, to obtain price for the United States; yearly price obtained by weighting monthly prices by Federal inspected slaughter. For previous data see 1930 or earlier Yearbooks.

TABLE 338.—*Hogs: Average price per 100 pounds at Chicago, by months, 1924–25 to 1933–34*

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Simple average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924–25	9.91	8.97	9.38	10.38	11.06	13.55	12.55	12.06	12.57	13.46	12.66	12.52	11.59
1925–26	11.31	11.28	10.97	12.02	12.45	12.20	12.33	13.55	14.01	12.51	11.48	12.03	12.18
1926–27	12.72	11.80	11.57	11.96	11.73	11.28	10.69	9.59	8.78	9.05	9.03	10.22	10.70
1927–28	10.39	8.92	8.32	8.25	8.08	8.08	9.28	9.67	9.91	10.65	11.53	11.89	9.58
1928–29	9.57	8.83	8.61	9.22	10.19	11.44	11.41	10.81	10.72	11.20	10.52	9.85	10.20
1929–30	9.38	9.06	9.34	9.78	10.67	10.17	10.00	10.02	9.52	8.73	9.58	9.76	9.67
1930–31	9.34	8.55	7.92	7.65	7.06	7.46	7.26	6.53	6.36	6.33	5.98	5.41	7.15
1931–32	5.09	4.61	4.20	4.00	3.89	4.33	3.85	3.34	3.62	4.58	4.21	4.00	4.14
1932–33	3.50	3.34	3.04	3.12	3.46	3.88	3.77	4.51	4.49	4.41	3.97	4.24	3.81
1933–34	4.43	4.04	3.25	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

Bureau of Agricultural Economics. Compiled from reports of packer and shipper purchases; such purchases do not include pigs, boars, stags, extremely rough sows, or cripples. The yearly figures are the simple average of the October to September prices. Data for 1901–23 are available in 1932 Yearbook, p. 789, table 336.

TABLE 339.—*Hogs: Annual slaughter under Federal inspection, 1907–33, estimated equivalent of Federal inspection, 1900–1906, and estimated total slaughter (including farm) in United States, 1900–1933* [1]

Year	Federally inspected	Total [2]	Year	Federally inspected	Total [2]	Year	Federally inspected	Total [2]
	Thousands	*Thousands*		*Thousands*	*Thousands*		*Thousands*	*Thousands*
1900	29,294	50,470	1912	33,053	55,564	1923	53,334	79,843
1901	31,129	51,870	1913	34,199	57,046	1924	52,873	79,631
1902	26,375	48,260	1914	32,532	55,501	1925	43,043	68,294
1903	26,971	47,900	1915	38,381	62,017	1926	40,636	65,779
1904	30,072	49,987	1916	43,084	67,613	1927	43,633	69,250
1905	31,855	51,540	1917	33,910	56,901	1928	49,795	76,593
1906	31,610	52,680	1918	41,214	64,796	1929	48,445	74,945
1907	32,885	54,058	1919	41,812	65,190	1930	44,266	70,390
1908	38,643	60,515	1920	38,019	61,890	1931	44,772	71,157
1909	31,395	53,220	1921	38,982	62,957	1932	45,245	74,021
1910	26,014	47,076	1922	43,114	68,105	1933	47,226	--------
1911	34,133	56,646						

[1] Federal Meat Inspection Act effective Oct. 1, 1906.
[2] Subject to revision.

Bureau of Animal Industry and Bureau of Agricultural Economics.
Data for years 1880–99 last printed in 1933 Yearbook.

TABLE 340.—*Hogs: Shipments, slaughter, value of production, and income, by States, 1932*

State and division	Shipments and local slaughter		Inshipments, stocker, feeding, and breeding		Farm slaughter		Value of amount consumed on farms	Receipts from sales	Gross income	Value of production
	Head	Total weight	Head	Total weight	Head	Total weight				
	Thousands	*1,000 pounds*	*Thousands*	*1,000 pounds*	*Thousands*	*1,000 pounds*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Maine	21	5, 460	------	------	27	7, 290	186	504	690	648
New Hampshire	5	1, 300	------	------	8	2, 160	44	122	166	166
Vermont	13	3, 380	------	------	27	7, 020	149	369	518	477
Massachusetts	74	19, 240	5	500	35	9, 100	200	1, 077	1, 277	1, 098
Rhode Island	1	250	------	------	5	1, 250	33	57	90	80
Connecticut	7	1, 820	------	------	22	5, 720	158	284	442	400
New York	59	13, 570	4	400	161	38, 318	938	1, 577	2, 515	2, 336
New Jersey	69	13, 800	19	2, 375	42	9, 660	295	780	1, 075	1, 044
Pennsylvania	188	43, 240	3	300	365	91, 250	2, 904	3, 894	6, 798	6, 623
North Atlantic	437	102, 060	31	3, 575	692	171, 768	4, 907	8, 664	13, 571	12, 872
Ohio	2, 736	621, 072	6	660	600	150, 000	4, 828	23, 885	28, 713	30, 595
Indiana	3, 488	809, 216	16	1, 920	525	131, 250	4, 516	30, 283	34, 799	37, 644
Illinois	5, 547	1, 331, 280	22	2, 530	660	165, 000	5, 272	47, 894	53, 166	55, 250
Michigan	575	120, 750	14	1, 400	306	73, 440	1, 743	5, 554	7, 297	7, 530
Wisconsin	1, 776	396, 278	1	100	490	110, 250	2, 910	14, 018	16, 928	16, 709
East North Central	14, 122	3, 278, 596	59	6, 610	2, 581	629, 940	19, 269	121, 634	140, 903	147, 728
Minnesota	4, 876	1, 039, 113	33	3, 630	430	94, 600	2, 603	33, 632	36, 235	34, 386
Iowa	12, 634	2, 869, 998	20	2, 300	625	153, 125	4, 802	91, 859	96, 661	94, 275
Missouri	4, 357	980, 325	30	3, 300	701	175, 250	5, 422	33, 866	39, 288	40, 418
North Dakota	733	165, 225	------	------	268	64, 320	1, 551	4, 577	6, 128	5, 490
South Dakota	1, 987	437, 490	3	345	220	51, 700	1, 399	12, 549	13, 948	14, 479
Nebraska	5, 995	1, 451, 710	4	400	336	85, 680	2, 535	44, 360	46, 895	42, 195
Kansas	3, 203	706, 860	25	2, 875	400	100, 000	2, 930	22, 418	25, 348	26, 333
West North Central	33, 785	7, 650, 721	115	12, 850	2, 980	724, 675	21, 242	243, 261	264, 503	257, 576
North Central	47, 907	10, 929, 317	174	19, 460	5, 561	1, 354, 615	40, 511	364, 895	405, 406	405, 304
Delaware	6	1, 140	------	------	21	4, 200	128	164	292	263
Maryland	42	7, 350	------	------	154	36, 960	1, 377	758	2, 135	2, 095
Virginia	219	48, 430	1	100	575	143, 750	5, 012	3, 362	8, 374	7, 788
West Virginia	15	2, 750	2	200	215	53, 750	1, 593	642	2, 235	2, 182
North Carolina	90	18, 000	------	------	711	156, 420	6, 382	2, 328	8, 710	8, 887
South Carolina	105	20, 400	------	------	400	84, 000	3, 356	1, 145	4, 501	4, 478
Georgia	329	49, 350	------	------	1, 010	217, 150	7, 133	2, 832	9, 965	9, 600
Florida	178	25, 950	------	------	300	42, 000	844	1, 601	2, 445	2, 273
South Atlantic	984	173, 370	3	300	3, 386	738, 230	25, 825	12, 832	38, 657	37, 566
Kentucky	397	70, 225	4	300	650	162, 500	5, 443	3, 745	9, 188	9, 767
Tennessee	337	68, 400	1	125	630	163, 800	5, 282	3, 676	8, 958	9, 519
Alabama	50	10, 000	1	150	597	119, 400	3, 851	1, 182	5, 033	5, 350
Mississippi	69	10, 350	2	280	590	118, 000	3, 725	1, 446	5, 171	5, 452
Arkansas	241	36, 150	2	200	536	107, 200	2, 989	2, 072	5, 061	5, 539
Louisiana	187	28, 050	1	150	420	67, 200	2, 341	1, 911	4, 252	4, 010
Oklahoma	645	131, 100	7	700	405	101, 250	3, 046	4, 414	7, 460	8, 683
Texas	542	117, 780	5	500	979	254, 540	7, 616	5, 330	12, 946	14, 031
South Central	2, 468	472, 055	23	2, 405	4, 807	1, 093, 890	34, 293	23, 776	58, 069	62, 351
Montana	171	33, 540	------	------	125	27, 500	731	1, 474	2, 205	2, 108
Idaho	287	54, 530	------	------	75	17, 625	523	1, 991	2, 514	2, 463
Wyoming	70	13, 300	1	100	35	8, 050	208	474	682	562
Colorado	644	142, 830	50	5, 000	93	22, 320	602	4, 564	5, 166	4, 713
New Mexico	40	8, 000	------	------	37	7, 400	184	289	473	474
Arizona	24	4, 800	------	------	9	1, 710	45	237	282	277
Utah	44	6, 600	2	200	40	8, 000	237	344	581	580
Nevada	10	1, 850	------	------	9	1, 800	61	93	154	139
Washington	173	36, 705	14	1, 400	126	27, 720	629	2, 051	2, 680	2, 754
Oregon	207	40, 930	15	1, 500	105	22, 050	514	1, 999	2, 513	2, 317
California	650	117, 600	3	300	70	14, 000	413	5, 014	5, 427	5, 542
Western	2, 320	460, 685	85	8, 500	724	158, 175	4, 147	18, 530	22, 677	21, 929
United States	54, 116	12, 137, 487	316	34, 240	15, 170	3, 516, 678	109, 683	428, 697	538, 380	540, 022

Bureau of Agricultural Economics. Estimates of Division of Crop and Livestock Estimates and are preliminary. The figures on income as shown in tables 459 and 460 are computed from the data shown in this table. The difference between gross income and value of production arises from the fact that in computing value of production allowance is made for changes in inventory numbers at the beginning and end of the year, while in computing income these changes are not used.

TABLE 341.—*Hogs: Slaughter in specified countries, 1924–33*

Year	United States Federally inspected	Canada, total	Germany, inspected slaughter	Denmark, in export slaughter-houses	England and Wales sold off farms for slaughter [1]	Ireland, purchased by bacon curers	Netherlands, slaughter for consumption and export
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
1924	52, 873	6, 625	10, 527	4, 024	4, 500	1, 116	2, 768
1925	43, 043	5, 720	12, 090	3, 766	3, 588	915	2, 810
1926	40, 636	5, 636	13, 072	3, 838	3, 074	914	2, 440
1927	43, 633	5, 965	17, 279	5, 098	3, 680	1, 064	3, 041
1928	49, 795	5, 880	19, 480	5, 373	4, 109	1, 272	3, 077
1929	48, 445	5, 747	17, 252	4, 994	3, 244	1, 146	2, 415
1930	44, 266	5, 248	18, 041	6, 132	3, 214	1, 034	2, 781
1931	44, 772	6, 187	20, 520	7, 320	3, 845	1, 091	3, 661
1932	45, 244	7, 098	19, 002	7, 841	4, 475	1, 115	3, 584
1933 [2]	47, 226	(3)	18, 203	6, 392	[4] 4, 810	(4)	------------

[1] Years beginning June 1.
[2] Preliminary estimates.
[3] Inspected slaughter alone was as follows in thousands: 1932, 2,723; 1933, 2, 802.
[4] Estimated slaughter in the United Kingdom and Irish Free State for year beginning June 1 was as follows: 1924, 6,285; 1925, 4,804; 1926, 4,439; 1927, 5,675; 1928, 6,168; 1929, 4,759; 1930, 4,816; 1931, 5,866; 1932, 6, 278.

Bureau of Agricultural Economics; compiled from official sources and cabled reports from agricultura representatives abroad.
For earlier years see U.S. Department of Agriculture Yearbook 1931.

TABLE 342.—*Lard, American: Average price per pound at Liverpool, 1924–33*

PRIME WESTERN STEAM [1]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924	14. 8	13. 1	12. 8	12. 7	12. 3	12. 2	13. 7	15. 8	15. 8	18. 1	17. 2	18. 1	14. 7
1925	18. 0	[2] 17. 5	18. 7	17. 8	17. 6	19. 1	19. 3	19. 2	19. 2	17. 9	17. 8	16. 6	18. 2
1926	17. 2	16. 5	16. 5	16. 0	[2] 17. 6	18. 4	17. 8	17. 0	16. 6	15. 8	14. 2	14. 3	16. 5
1927	14. 3	14. 4	14. 4	14. 3	14. 1	14. 4	14. 3	13. 8	14. 6	14. 4	14. 0	13. 5	14. 2
1928	13. 6	12. 9	13. 0	13. 3	13. 4	13. 3	13. 7	13. 9	14. 4	13. 9	13. 4	13. 2	13. 5
1929	13. 4	13. 5	13. 9	13. 5	13. 4	13. 5	13. 9	13. 8	13. 5	12. 7	12. 1	11. 8	13. 2
1930	11. 9	12. 2	11. 8	11. 8	11. 8	11. 3	11. 2	12. 3	13. 2	13. 2	12. 5	11. 3	12. 0
1931	[3] 10. 6	9. 8	10. 5	10. 3	9. 5	10. 0	9. 5	8. 8	8. 7	9. 0	8. 2	7. 3	9. 3
1932	6. 7	6. 5	6. 7	6. 3	5. 8	5. 6	6. 9	7. 0	7. 0	6. 1	[2] 7. 6	6. 4	6. 6
1933	[3] 6. 0	5. 8	6. 2	6. 4	8. 2	8. 2	8. 7	7. 7	7. 5	7. 4	7. 5	6. 4	7. 2

REFINED [4]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1931	------	------	------	------	------	------	9. 5	8. 9	8. 9	9. 4	8. 4	8. 1	------
1932	7. 0	6. 9	6. 9	6. 5	6. 2	6. 1	7. 2	7. 5	7. 6	7. 2	7. 3	6. 8	6. 9
1933	6. 7	5. 9	6. 3	6. 5	8. 2	8. 2	8. 8	7. 8	7. 6	7. 5	7. 6	6. 7	7. 3

[1] Average price in tierces.
[2] 2 quotations only.
[3] 1 quotation only.
[4] Average price in boxes.

Bureau of Agricultural Economics; compiled as follows: Prime western steam, Manchester Guardian, averages of Friday quotations; refined, monthly reports of H. E. Reed, foreign agricultural representative, London, average of daily quotations.
Converted at monthly average rates of exchange as given in Federal Reserve Bulletin, except for period January 1926–August 1931, when par of exchange was used.

TABLE 343.—*Lard, refined: Average price per 100 pounds at Chicago, by months, 1924–33*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924	14.52	13.03	12.84	12.50	12.19	12.13	13.65	15.94	16.25	18.05	16.68	18.00	14.65
1925	17.59	17.03	18.25	17.07	16.50	18.13	18.42	18.94	18.95	18.75	18.50	16.67	17.90
1926	16.81	16.44	16.70	16.75	17.13	18.48	18.00	17.38	17.50	16.75	15.75	15.25	16.91
1927	13.59	13.72	14.38	14.32	14.12	13.35	12.25	12.54	14.25	14.50	13.60	13.25	13.66
1928	12.50	11.60	11.50	12.50	13.10	13.50	14.00	14.70	15.25	14.40	13.62	12.88	13.30
1929	12.75	12.75	13.31	13.25	12.85	12.85	13.22	13.56	13.81	13.17	12.21	11.94	12.97
1930	11.45	12.38	12.12	11.65	11.50	11.00	10.50	12.44	14.25	13.94	12.31	10.70	12.02
1931	9.62	8.94	10.00	10.00	9.50	9.53	8.65	8.32	9.00	8.58	8.47	7.65	9.02
1932	6.50	6.53	6.70	6.00	5.50	5.33	6.96	7.00	6.75	6.25	6.19	5.28	6.25
1933	5.69	5.00	5.50	6.09	7.23	7.04	7.53	6.65	6.31	6.73	6.98	6.25	6.42

Bureau of Agricultural Economics. Compiled from data of the livestock and meat reporting service of the Bureau. Beginning January 1927 prices represent refined lard in hardwood tubs, earlier prices represent pure lard in tierces. Prices 1905 to December 1923 available in 1927 Yearbook, p. 1018.

TABLE 344.—*Pork and lard:*[1] *Stocks in cold-storage warehouses and meat-packing establishments, United States, 1924–33*

Product and year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
Dry salt pork, cured and in process of cure:	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
1924	148,121	167,507	178,258	192,934	191,882	206,009	212,158	202,618	180,127	135,702	81,460	78,871
1925	118,718	136,125	150,819	142,950	145,548	142,292	162,518	164,374	152,555	128,599	106,011	96,746
1926	119,617	138,005	144,071	151,286	140,324	136,801	148,164	168,882	172,766	143,572	98,521	66,765
1927	68,203	86,135	101,156	124,676	129,637	143,143	173,256	185,920	178,107	140,420	100,922	77,240
1928	97,335	119,751	160,609	178,012	173,652	169,663	174,906	164,473	156,462	125,899	101,123	102,440
1929	143,011	167,561	179,776	178,595	185,580	171,450	163,805	172,308	160,519	139,256	111,092	88,782
1930	107,782	116,288	123,740	115,653	110,303	105,913	108,171	114,095	97,237	71,143	43,194	48,931
1931	70,188	108,394	129,278	141,225	147,995	148,682	154,949	168,505	153,507	116,180	79,453	63,121
1932	87,188	103,827	122,902	124,242	127,146	128,423	118,092	111,210	108,779	91,355	65,337	50,874
1933	69,263	81,885	86,848	87,039	89,216	105,646	131,256	146,303	144,888	126,377	92,779	81,703
Pickled[2] pork, cured and in process of cure:												
1924	434,030	468,892	500,784	512,190	500,683	483,372	473,914	443,918	408,928	351,485	283,710	299,868
1925	398,521	443,025	483,302	468,099	467,395	425,481	407,610	373,227	338,156	284,485	256,684	261,128
1926	294,642	319,726	345,661	346,049	338,905	320,305	333,305	340,687	330,326	293,106	257,726	266,222
1927	306,904	352,681	392,642	420,037	435,967	432,965	450,172	440,744	407,239	341,460	289,553	276,916
1928	320,436	370,916	461,264	496,322	480,069	459,878	454,826	408,994	351,936	285,309	265,988	292,626
1929	375,217	424,921	473,916	453,612	452,868	443,044	430,317	412,649	382,750	342,038	304,400	316,180
1930	368,126	392,123	443,882	430,926	411,705	392,403	396,810	380,182	329,074	283,979	249,485	285,636
1931	328,010	402,448	453,042	431,926	453,038	434,324	403,908	362,423	311,985	277,148	247,986	264,205
1932	334,360	383,273	445,346	419,687	430,772	442,222	411,208	372,787	349,559	328,309	308,032	291,177
1933	319,794	350,114	368,592	370,169	375,257	389,102	416,740	433,842	416,891	375,563	324,760	365,766
Frozen pork:												
1924	126,718	164,491	199,044	227,284	215,767	201,728	186,566	164,049	121,816	77,986	42,561	48,781
1925	130,125	199,642	231,234	218,508	201,246	180,645	168,527	131,935	93,078	54,294	29,910	27,153
1926	57,960	98,311	120,115	129,259	124,569	117,366	120,707	133,104	119,994	77,673	49,376	55,241
1927	97,650	150,255	177,876	193,733	204,608	211,742	220,847	214,607	181,072	126,887	76,644	65,666
1928	105,654	164,971	264,043	323,403	306,951	289,825	285,628	245,714	173,617	103,879	66,049	66,696
1929	151,811	245,798	291,050	289,754	285,110	256,291	247,815	229,397	176,131	119,204	75,910	84,667
1930	145,078	178,695	217,942	206,417	189,692	176,851	174,240	157,167	124,648	92,305	64,127	77,137
1931	122,994	215,422	271,088	270,520	266,491	244,745	215,794	180,883	129,571	81,559	53,456	69,237
1932	141,758	187,051	244,151	248,268	241,146	225,221	194,971	159,055	120,538	78,589	60,179	61,847
1933	101,793	143,085	153,881	153,032	165,887	175,805	212,734	228,177	194,922	128,497	75,769	81,985
Lard:[1]												
1924	49,340	54,130	68,610	85,722	102,317	127,949	152,520	149,672	124,676	84,198	31,706	35,713
1925	61,049	112,704	151,927	150,182	151,499	138,295	145,919	145,924	114,724	71,626	37,256	33,710
1926	42,478	64,187	76,145	93,108	98,365	106,824	120,527	153,572	151,233	105,558	72,355	46,744
1927	49,992	69,576	77,103	92,069	99,611	111,976	147,318	179,136	167,018	118,174	72,121	46,154
1928	54,855	84,007	121,082	164,506	173,088	186,073	214,479	204,939	177,888	126,890	83,474	67,257
1929	85,217	140,526	173,864	179,428	184,748	183,490	199,699	203,010	180,085	153,690	99,845	68,517
1930	82,098	92,171	111,914	105,067	104,905	115,270	120,322	118,353	88,868	59,732	36,211	31,582
1931	51,434	62,624	74,977	78,249	95,693	103,366	115,561	121,926	96,047	69,296	39,766	34,824
1932	51,224	78,430	92,861	105,635	111,007	128,103	130,363	121,618	100,577	70,656	34,410	29,766
1933	41,088	52,841	58,182	61,674	71,895	110,889	186,250	219,259	224,476	192,061	133,693	116,077

[1] Lard includes all prime steam, kettle-rendered, neutral, and other pure lards. It does not include lard substitutes nor compounds.
[2] Pickled pork includes sweet-pickled, plain-brine, and barreled pork.

Bureau of Agricultural Economics; compiled from reports made by cold-storage establishments.

TABLE 345.—*Hog products: International trade, average 1925–29, annual 1930–32*

Country	Average, 1925–29 Exports	Average, 1925–29 Imports	1930 Exports	1930 Imports	1931 Exports	1931 Imports	1932[1] Exports	1932[1] Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
United States	1,136,856	10,459	949,730	4,655	750,822	3,976	679,229	5,774
Denmark	557,264	2,869	738,247	2,714	897,558	2,249	923,307	1,166
Netherlands	249,396	15,089	210,205	5,225	285,673	4,883	257,759	3,134
Irish Free State	92,656	55,011	78,353	54,153	84,901	56,056	64,134	23,123
Canada	90,757	17,247	20,651	21,398	22,269	5,318	50,947	3,671
Poland	48,032	37,238	78,478	30,879	161,306	621	138,357	41
Sweden	41,205	9,796	63,960	6,591	67,870	4,940	49,750	3,523
Hungary	26,512	84	26,205	1	12,049	0	8,116	0
New Zealand	13,177	35	16,846	2	13,612	0	16,336	1
China	12,824	413	10,586	278	9,807	255	6,437	2,023
Argentina	9,319	42	12,493	31	14,116	16	24,351	9
Estonia	3,826	289	2,737	19	6,906	0	9,056	0
Australia [2]	3,374	2,119	3,375	829	11,768	173	11,737	17
Total	2,285,198	150,691	2,211,866	126,775	2,338,657	78,487	2,239,516	42,482
PRINCIPAL IMPORTING COUNTRIES								
United Kingdom	5,883	1,371,607	5,102	1,490,935	6,110	1,702,810	5,691	1,701,425
Germany	4,584	322,127	13,735	237,707	11,655	266,135	1,369	325,259
Cuba	0	130,313	0	101,265	0	64,066		
France	3,135	88,097	1,602	78,263	1,100	71,982	824	30,934
Czechoslovakia	4,018	81,017	3,459	64,227	2,074	63,341	718	48,199
Mexico	[3] 14	45,127	6	77,390	1	47,615		
Austria	673	33,382	314	23,337	2,125	43,128	11	19,836
Belgium	7,184	22,099	3,096	34,804	2,602	47,399	1,426	39,359
Italy	3,212	16,850	2,059	11,055	2,679	3,463	1,932	15,568
Finland	379	12,024	751	7,419	3,753	4,731	4,470	4,681
Peru	6	11,692	0	4,966	0	2,445	1	
Norway	17	8,285	85	3,827	47	2,028	35	3,352
Philippine Islands	0	7,015	0	6,946	0	8,334	0	8,619
Switzerland	188	6,765	21	4,913	17	5,366	256	1,959
Brazil	940	2,569	1,712	888	886	405	271	387
Spain	1,803	2,484	2,951	540	4,023	273	3,083	257
Union of South Africa	747	1,398	618	1,175	774	1,049	355	664
Chile	[3] 199	473	674	110	200	198	117	
Total	32,982	2,163,324	36,185	2,149,767	38,046	2,334,768	20,559	2,200,499

[1] Preliminary. [2] Year ended June 30. [3] 4-year average.

Bureau of Agricultural Economics; official sources.

These figures comprise: Pork, fresh, canned, pickled, smoked, bacon, Cumberland sides, Wiltshire sides, hams and shoulders, lard, lard compound, neutral lard, hog casings, lard oil, heads, and feet.

TABLE 346.—*Bacon and hams, green, firsts: Average price per pound at British markets, 1924–33*

Year	Bacon, Wiltshire sides [1] at Bristol: Danish	Bacon, Wiltshire sides [1] at Bristol: Swedish	Bacon, Wiltshire sides [1] at Bristol: British	Bacon, American bellies, at Liverpool	Ham, American short cut, at Liverpool
	Cents	*Cents*	*Cents*	*Cents*	*Cents*
1924	21.3	20.1	23.5	[2] 16.7	19.4
1925	27.5	25.6	30.1	25.9	26.1
1926	27.9	26.2	32.3	23.8	28.8
1927	21.2	19.3	26.9	20.0	22.9
1928	21.2	19.9	25.8	18.4	22.1
1929	24.5	23.8	28.3	19.5	23.8
1930	20.6	19.9	27.4	[2] 18.7	21.9
1931	13.2	12.2	19.6	12.6	16.6
1932	9.2	8.8	13.5	[3] 8.8	11.6
1933	13.6	14.4	17.2	[2] 11.0	13.9

[1] Entire half of hog in 1 piece, head off, backbone out, ribs in. [2] 11 months. [3] 10 months.

Bureau of Agricultural Economics; compiled from Agricultural Market Report, Ministry of Agriculture and Fisheries, Great Britain; average of weekly averages.

Converted at monthly average rates of exchange as given in Federal Reserve Bulletins, except for period January 1926–August 1931, when par of exchange was used.

TABLE 347.—*Lard: International trade, average 1925–29, annual 1929–32*

Country	Calendar year									
	Average, 1925–29		1929		1930		1931		1932 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
United States	731, 629	0	829, 328	0	642, 486	0	568, 708	0	546, 202	0
Netherlands	64, 693	6, 748	49, 112	4, 727	39, 619	2, 831	60, 350	2, 769	37, 099	2, 331
Denmark	25, 954	1, 383	28, 434	1, 259	38, 102	1, 377	50, 613	912	53, 305	304
China	10, 672	0	9, 880	0	8, 458	0	8, 074	0	4, 756	66
Hungary	9, 618	15	2, 863	0	9, 183	0	6, 636	0	4, 073	0
Canada	4, 020	1, 462	1, 504	297	175	1, 656	4, 730	48	4, 886	1, 040
Irish Free State	3, 852	699	3, 794	879	3, 210	1, 016	3, 262	824	5, 956	1, 590
Madagascar	1, 998	2	1, 353	1	1, 514	0	1, 689	0	2, 417	1
Australia [2]	1, 550	413	1, 599	421	970	206	1, 044	101	2, 924	15
Total	853, 986	10, 722	927, 867	7, 584	743, 717	7, 086	705, 106	4, 654	661, 618	5, 347
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	912	267, 191	524	292, 681	739	279, 444	645	284, 505	385	270, 390
Germany	857	216, 643	[3] 483	212, 780	[3] 267	177, 180	[3] 428	183, 454	[3] 57	237, 460
Cuba	0	87, 352	0	81, 025	0	69, 035	0	45, 178	------	------
Czechoslovakia	52	66, 159	2	66, 499	7	52, 630	3	45, 401	1	41, 495
Mexico	[4] 14	[4] 53,458	0	[5] 30,522	6	77, 390	1	47, 615	------	------
Austria	672	33, 151	280	39, 036	25	22, 334	1, 970	18, 493	8	11, 339
France	500	32, 856	465	28, 302	493	17, 414	304	4, 568	164	2, 830
Poland	47	30, 326	32	35, 143	22	26, 549	139	577	29	1
Belgium	2, 205	16, 257	3, 357	19, 039	1, 947	14, 199	1, 298	8, 980	836	12, 251
Peru	6	11, 692	10	9, 464	0	4, 966	0	2, 445	1	------
Italy	820	7, 523	298	11, 902	256	5, 324	211	2, 807	38	5, 769
Finland	54	6, 758	0	6, 284	0	5, 277	0	3, 302	1	3, 838
Switzerland	21	6, 031	13	6, 783	10	3, 968	14	3, 345	25	1, 886
Dominican Republic	0	4, 883	0	6, 284	0	4, 058	0	4, 549	0	4, 418
Philippine Islands	0	4, 799	0	5, 859	0	4, 706	0	5, 909	0	5, 740
British Malaya	1, 151	3, 832	824	3, 526	815	2, 399	426	1, 978	------	------
Sweden	1, 327	2, 843	1, 339	2, 182	2, 560	1, 602	3, 512	1, 884	2, 553	1, 329
Brazil	231	2, 312	856	372	986	654	653	310	44	329
Norway	1	1, 945	0	1, 496	0	1, 177	0	1, 114	1	487
Yugoslavia	936	1, 501	15	3, 280	262	201	1, 748	16	2, 161	0
Total	9, 806	857, 512	8, 498	862, 459	8, 395	770, 447	11, 352	666, 430	6, 304	599, 562

[1] Preliminary.
[2] Year ended June 30.
[3] Includes oleomargarine.
[4] 4-year average.
[5] 6 months, January to June 1929.

Bureau of Agricultural Economics; official sources.

TABLE 348.—*Hogs: Cholera-control work by Bureau of Animal Industry, 1919–33*

Year ended June 30	Bureau veterinarians engaged in work [1]	Premises investigated	Demonstrations		Autopsies performed	Outbreaks reported to Bureau veterinarians
			Number	Hogs tested		
1919	180	93, 512	----------	233, 987	53, 586	12, 336
1920	140	46, 145	3, 037	347, 702	10, 963	9, 788
1921	54	29, 433	3, 420	67, 295	3, 888	7, 951
1922	80	47, 137	4, 343	88, 846	5, 390	7, 920
1923	71	52, 348	5, 234	108, 562	5, 247	7, 204
1924	45	29, 443	3, 178	78, 007	3, 686	7, 225
1925	34	24, 060	2, 353	51, 331	2, 383	3, 437
1926	35	20, 599	2, 579	69, 230	2, 446	4, 558
1927	37	25, 004	4, 863	97, 917	3, 741	11, 555
1928	39	25, 156	4, 444	106, 960	3, 368	6, 941
1929	38	28, 939	2, 648	56, 023	3, 326	7, 029
1930	37	26, 858	1, 740	35, 158	2, 505	4, 162
1931	36	23, 226	1, 460	29, 152	3, 011	3, 388
1932	35	24, 792	2, 066	36, 552	3, 722	6, 480
1933	32	28, 897	1, 829	37, 523	3, 226	4, 358

[1] Small portion of time occasionally devoted to other work.

Bureau of Animal Industry.

TABLE 349.—*Sheep and lambs: Number on farms and farm value per head, by States, Jan. 1, 1932–34*

State and division	Number			Farm value per head [1]		
	1932	1933	1934 [2]	1932	1933	1934
	Thousands	*Thousands*	*Thousands*	*Dollars*	*Dollars*	*Dollars*
Maine	79	70	67	3.50	3.00	3.30
New Hampshire	18	16	16	4.50	3.70	4.10
Vermont	39	36	35	3.90	3.50	3.90
Massachusetts	11	11	11	4.50	3.60	4.10
Rhode Island	2	2	2	4.50	4.00	4.50
Connecticut	10	10	9	4.70	4.30	4.80
New York	473	454	454	4.40	3.60	4.40
New Jersey	7	7	7	5.40	3.60	4.30
Pennsylvania	491	501	526	4.40	3.00	3.30
North Atlantic	1,130	1,107	1,127	4.35	3.30	3.79
Ohio	2,129	2,079	2,110	3.50	2.80	3.50
Indiana	840	785	733	4.00	3.30	4.10
Illinois	749	736	623	3.80	3.20	4.00
Michigan	1,248	1,230	1,171	3.90	3.10	4.00
Wisconsin	540	464	465	3.20	2.50	3.40
East North Central	5,506	5,294	5,102	3.67	2.97	3.74
Minnesota	1,132	1,137	1,174	3.20	2.80	3.80
Iowa	1,428	1,208	1,247	3.30	2.90	4.30
Missouri	1,225	1,200	1,189	3.30	2.70	3.80
North Dakota	1,100	1,046	939	3.30	2.70	3.70
South Dakota	1,375	1,441	1,371	3.30	2.90	3.80
Nebraska	1,036	1,057	997	3.00	2.80	4.20
Kansas	777	682	642	3.10	2.70	3.90
West North Central	8,073	7,771	7,559	3.23	2.78	3.94
North Central	13,579	13,065	12,661	3.41	2.86	3.86
Delaware	4	4	3	5.00	3.80	4.70
Maryland	108	108	109	5.10	3.80	4.50
Virginia	495	480	470	4.60	3.50	4.30
West Virginia	631	631	650	4.40	3.30	3.70
North Carolina	91	96	95	3.90	3.10	3.50
South Carolina	14	14	15	3.60	3.10	3.10
Georgia	36	36	36	2.30	2.20	2.40
Florida	43	44	43	2.40	2.30	2.40
South Atlantic	1,422	1,413	1,421	4.35	3.32	3.84
Kentucky	897	906	951	4.70	3.90	4.50
Tennessee	393	405	389	4.00	3.20	4.00
Alabama	50	52	47	2.60	2.00	2.30
Mississippi	100	100	95	2.00	1.80	2.30
Arkansas	59	61	58	2.60	2.00	2.20
Louisiana	140	143	137	2.70	2.00	2.20
Oklahoma	185	188	161	3.00	2.70	3.20
Texas	7,212	7,644	8,179	2.90	2.50	3.00
South Central	9,036	9,499	10,017	3.12	2.61	3.12
Montana	3,820	4,087	4,144	3.20	3.00	4.10
Idaho	2,274	2,264	2,396	3.60	3.20	4.10
Wyoming	3,972	3,893	3,614	3.60	3.20	4.10
Colorado	3,391	3,093	3,008	3.10	2.90	4.20
New Mexico	3,002	2,820	2,757	2.30	2.30	3.20
Arizona	1,090	1,003	1,010	2.40	2.30	3.40
Utah	2,755	2,360	2,242	3.70	3.00	3.90
Nevada	1,200	1,019	979	4.00	3.30	4.60
Washington	706	720	721	4.00	3.30	4.50
Oregon	2,580	2,355	2,391	3.60	2.90	3.90
California	3,198	3,038	2,886	4.20	3.30	4.20
Western	27,988	26,652	26,148	3.40	2.99	4.01
United States	53,155	51,736	51,374	3.40	2.90	3.79

[1] Sum of total value of classes divided by total number and rounded to nearest dime for States. Division and United States averages not rounded.
[2] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 350.—*Sheep: Number in countries having 100,000 and over, averages 1921–25 and 1926–30, annual 1929–32*

Country	Date or month of estimate	Average 1921–25 [1]	Average 1926–30 [1]	1929	1930	1931	1932
NORTH AMERICA AND WEST INDIES		*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
United States	Jan. 1	37,662	45,448	48,249	51,383	52,599	53,155
Canada	June	3,027	3,431	3,636	3,696	3,608	3,644
Mexico	do	[2] 1,362	2,136		[3] 1,574		
Guatemala		153	196	189	184	147	166
Cuba		(75)	102	102			
Dominican Republic		148	162				
Estimated total [4]		42,700	51,700				
SOUTH AMERICA							
Colombia		776	794		810		
Venezuela		113	(113)				
Ecuador		(1,000)	1,100	[5] 1,500			
Peru		11,363	[3] 11,209	[3] 11,209			
Bolivia	Jan. 1 [6]	3,436	4,742	4,786	5,020	5,232	
Chile		4,332	[3] 6,263		[3] 6,263		
Brazil	September	[7] 7,933	(8,500)				[5] 10,661
Uruguay		[3] 14,443	19,958	[5] 19,358	[3] 20,558	(18,000)	15,406
Paraguay	Jan. 1 [6]	(600)	(600)				
Argentina	do	[3] 36,209	[3 8] 44,413		[3 8] 44,413		
Falkland Islands		649	613	613	607	609	
Estimated total [4]		80,900	98,300				
EUROPE							
Iceland		565	628	640	683		
England and Wales	June	14,385	16,548	16,105	16,316	17,749	18,495
Scotland	do	6,827	7,505	7,556	7,650	7,831	7,916
Northern Ireland	do	456	622	654	704	794	792
Irish Free State	do	2,804	3,255	3,375	3,515	3,575	3,461
Norway [9]	do	1,380	1,596	1,533	1,588	1,692	1,736
Sweden	July	1,384	680		653	635	608
Denmark	do	380	213	193			
Netherlands	May–June	[3] 668	[3] 485		[3] 485		
Belgium	Jan. 1 [6]	126	[5] 122				
France	do	9,777	10,574	10,415	10,452	10,152	9,844
Spain	do	19,229	19,989	[3] 19,370	(19,140)	(19,590)	20,047
Portugal	do	3,721	4,450	[5] 4,000			
Italy	March–April	12,014	11,310		[3] 10,269		
Switzerland	April	245	170			184	
Germany	Jan. 1 [6]	5,889	3,953	3,635	3,480	3,504	3,499
Austria	do	526	[3] 272		[3] 272		
Czechoslovakia	do	[7] 986	848		[3 10] 836	608	531
Hungary	April	1,661	1,604	1,573	1,464	1,440	1,210
Yugoslavia	Jan. 1	7,683	7,807	7,722	7,736	7,953	8,426
Greece	do. [6]	5,965	6,551	6,920	5,806	6,799	7,072
Bulgaria	do	8,186	8,384	7,986			
Rumania	do	11,660	12,936	12,801	12,406	12,230	12,356
Poland	November	2,193	2,244	2,321	2,492	2,599	2,489
Lithuania	June 30	1,314	1,335	1,125	1,097	1,212	1,317
Latvia	June	1,240	1,030	906	873	923	984
Estonia	July	654	587	476	467	479	514
Finland	September	1,526	1,196	957	924	920	965
Russia (European and Asiatic) [11]	Summer	98,100	122,780	133,900	99,000	70,700	47,400
Estimated total excluding Russia [4]		123,600	127,100				
AFRICA							
Abysinnia (Ethiopia)		(2,000)	4,000	4,000			
Morocco		7,533	8,364	8,848	7,976	6,613	7,556
Algeria	September	5,943	6,170	6,196	7,172	4,671	5,269
Libia (Italian)		1,043	931	991	682	(682)	
Tunis	Jan. 1 [6]	1,794	2,055	2,173	2,461	2,976	2,475
French West Africa		3,742	4,563	5,113	5,239	5,860	
French Sudan		2,173	2,576	2,739	2,739	3,100	
Gold Coast		373	432	400	684	684	
Nigeria, including British Cameroons		1,711	2,004	2,121	2,478	2,353	
Egypt	September	1,013	1,138	1,003	1,129	1,239	1,344
Anglo-Egyptian Sudan		1,638	2,160	2,200	2,200	2,250	
British Somaliland		(2,000)	1,800	1,700	2,000	2,500	
Italian Somaliland	Mar. 31	1,666	914	855	847		
Eritrea (Italian) [12]		(1,106)	1,216				
Kenya Colony	Mar.–June	2,600	2,908	2,905	3,228	3,243	
French Cameroon		(103)	216	300	319	329	
Uganda	Jan. 1 [6]	386	831	967	806	792	908
French Equatorial Africa		(700)	845	889	1,004	1,024	
Belgian Congo		304	282	(270)	272	244	

See footnotes at end of table.

TABLE 350.—*Sheep: Number in countries having 100,000 and over, averages 1921–25 and 1926–30, annual 1929–32*—Continued

Country	Date or month of estimate	Average 1921–25 [1]	Average 1926–30 [1]	1929	1930	1931	1932
AFRICA—continued		*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
Ruanda Urundi		150	289	400	411		
British Southwest Africa		954	1,249	1,266	1,311	1,397	
Bechuanaland		125	159	179	180	181	
Union of South Africa	August	32,561	43,129	45,172	48,520	[13] 51,300	[13] 48,700
Basutoland		1,954	2,146	2,150	2,233	2,829	1,949
Rhodesia, Southern	Jan. 1 [6]	333	349	359	354	360	376
Tanganyika Territory		(1,600)	2,121	2,262	2,233	2,281	
Madagascar		110	158	201	263		
Estimated total [4]		76,100	93,700				
ASIA							
Arabia		(3,500)	[5] 3,500				
Cyprus	March	237	259	273	290	306	
Turkey, European and Asiatic		10,458	11,853	10,185	10,498	11,762	11,768
Iraq (Mesopotamia) [12]	February	5,270	5,534	5,509	5,349	5,464	
Palestine	March	271	249	232	253	306	
Transjordan		(236)	237	260	229	292	
Persia		16,562	15,460	[5] 16,000			
Syria and Lebanon		1,797	2,035	2,540	2,682	2,969	
India:							
British	January–April	22,412	23,733	23,336	[3] 25,540	25,295	
Native States	do	12,299	13,578	12,445	[3] 19,089		
China, including Turkistan, Manchuria, Inner Mongolia		[14] (30,000)	[15] 26,000				[15] 26,000
Philippines	Jan. 1 [6]	115	125	125	125	128	112
Dutch East Indies:							
Java and Madura	do	915	1,292				
Outer Possessions	do	115	121				
Estimated total, excluding Russia [4]		114,300	114,100				
OCEANIA							
Australia	Jan. 1 [6]	85,556	103,329	103,431	104,558	110,568	110,619
New Zealand	April	23,382	27,516	29,051	30,841	29,793	28,692
Estimated total [4]		109,000	130,900				
Total countries reporting, all periods:							
To 1931 (56) [16]		472,430	558,218	573,320	552,143	534,128	
To 1932 (34) [16]		419,056	498,150	512,436	487,604	467,527	440,661
Estimated world total, including Russia [4] [17]		644,700	739,000				

[1] Average for 5-year period if available; otherwise, for any year or years within this period except as otherwise stated.
[2] Incomplete.
[3] Census figures.
[4] These totals include countries with less than 100,000; interpolations for a few countries not reporting each year and rough estimates for some others.
[5] Unofficial.
[6] Estimates for countries reporting as of Dec. 31 have been considered as of Jan. 1 of following year; i.e., figures for numbers of sheep in France as of Dec. 31, 1928 have been placed in 1929 column, etc.
[7] Census 1920.
[8] June 1930.
[9] In rural communities only.
[10] May.
[11] Years 1921–28 from Livestock Industry in the Soviet Union. Later figures from Pravda, Jan. 28, 1934. Sheep numbers for 1929–33 estimated from total number of sheep and goats.
[12] Goats included.
[13] Estimate based on change in sheep numbers in June compared with preceding June.
[14] Estimate based on official figures for 1920 for 20 Provinces which supported 80 percent of total number in China in 1914.
[15] Estimate based on official estimate for 1932 or 1933 published in the Chinese Economic Bulletin for 22 Provinces which supported 77 percent of total in 1914. The official estimate excluding Turkistan and Inner Mongolia for 1932 or 1933 was 19,995,000. Estimates for this territory and for Manchuria included with China, although some of it has recently been incorporated into Manchukuo.
[16] Comparable totals for numbers of countries indicated.
[17] Comparable estimated world totals by countries were as follows in millions of head: 1909–13, North America, Central America, and West Indies, 49.6; South America, 93.2; Europe (excluding Russia), 134.4; Africa, 71.2; Asia (excluding Russia), 115.3; Oceania, 114.7; Estimated world total, including Russia, 691.6.

Bureau of Agricultural Economics; compiled from official sources and the International Institute of Agriculture unless otherwise stated.

Figures in parenthesis are interpolated. See Wool issue of Foreign Crops and Markets usually published in May, and World Wool Prospects published monthly by this Bureau, for later figures.

TABLE 351.—*Sheep and lambs: Number on farms and farm value per head in the United States, Jan. 1, 1900–1934*

Year	Number [1]	Farm value per head Jan. 1	Year	Number [1]	Farm value per head Jan. 1	Year	Number [1]	Farm value per head Jan. 1
	Thousands	*Dollars*		*Thousands*	*Dollars*		*Thousands*	*Dollars*
1900 [2]	*61,504*		1912	43,279	3.46	*1925* [2]	*35,590*	
1900	44,573	2.93	1913	40,700	3.94	1925	38,392	9.68
1901	46,155	2.98	1914	37,773	4.02	1926	40,183	10.48
1902	46,667	2.65	1915	36,287	4.50	1927	42,302	9.67
1903	45,180	2.63	1916	36,543	5.17	1928	45,121	10.22
1904	42,439	2.59	1917	36,700	7.13	1929	48,249	10.59
1905	40,268	2.82	1918	39,000	11.82	*1930* [2]	*56,975*	
1906	42,454	3.54	1919	41,000	11.63	1930	51,233	8.94
1907	44,518	3.84	*1920* [2]	*35,034*		1931	52,599	5.36
1908	46,557	3.88	1920	40,643	10.45	1932	53,155	3.40
1909	48,382	3.43	1921	39,378	6.27	1933	51,736	2.90
1910 [2]	*52,448*		1922	36,821	4.79	1934 [3]	51,374	3.79
1910	47,072	4.12	1923	36,695	7.49			
1911	47,349	3.91	1924	37,020	7.88			

[1] Figures for 1900–1919 are tentative revised estimates of the Bureau of Agricultural Economics.
[2] Italic figures are from the census. Census dates were June 1, 1900, Apr. 15, 1910, Jan. 1, 1920 and 1925, and Apr. 1, 1930. 1900, 1910, and 1920 include spring-born lambs.
[3] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 352.—*Sheep: Receipts at principal public stockyards and at public stockyards, 1924–33*

Year	Chicago	Denver	East St. Louis	Fort Worth	Kansas City	Omaha	South St. Joseph	South St. Paul	Sioux City	Total nine markets [1]	All other stockyards reporting	Total all stockyards reporting [1]
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
1924	4,192	2,040	489	373	1,569	2,844	1,089	476	310	13,381	8,820	22,201
1925	3,969	2,357	559	314	1,500	2,420	1,143	545	360	13,166	8,934	22,100
1926	4,405	1,826	636	445	1,762	2,780	1,303	773	449	14,378	9,490	23,868
1927	3,829	1,908	574	445	1,616	2,604	1,348	705	527	13,555	10,384	23,939
1928	3,868	2,295	510	458	1,767	3,037	1,580	891	568	14,974	10,623	25,597
1929	3,785	2,290	534	540	1,753	3,031	1,636	1,139	840	15,548	11,320	26,868
1930	4,335	2,062	584	432	2,016	3,410	1,634	1,354	1,188	17,015	12,793	29,808
1931	4,489	2,499	661	1,173	2,244	3,510	1,572	1,690	1,279	19,118	13,905	33,023
1932	3,922	2,834	711	1,198	1,837	2,388	1,291	1,522	776	16,479	12,827	29,306
1933	3,536	2,902	659	779	1,672	2,125	1,233	1,552	857	15,316	11,868	27,184

[1] Rounded totals of complete figures.

Bureau of Agriculture Economics; compiled from data of the livestock and meat-reporting service of the Bureau.
Receipts 1900–1923 are available in 1924 Yearbook, p. 933, table 540.

TABLE 353.—*Farm prices of sheep, per head, by ages, United States, Jan. 1, 1925–34*

Year	Under 1 year old	Ewes 1 year and over	Wethers 1 year and over	Rams	Year	Under 1 year old	Ewes 1 year and over	Wethers 1 year and over	Rams
	Dollars	*Dollars*	*Dollars*	*Dollars*		*Dollars*	*Dollars*	*Dollars*	*Dollars*
1925	8.53	10.02	7.13	16.91	1930	7.85	9.10	6.44	19.61
1926	9.04	11.01	7.32	18.45	1931	4.64	5.42	3.43	12.91
1927	7.91	10.32	6.60	18.73	1932	2.87	3.47	2.38	8.20
1928	8.45	10.86	7.23	19.63	1933	2.66	2.88	1.79	6.87
1929	8.93	11.19	7.64	20.27	1934	3.50	3.74	2.27	9.17

Bureau of Agricultural Economics. Based on returns from special price reporters. Average price, by States, weighted by estimated numbers each age group.

TABLE 354.—*Sheep: Receipts and stocker and feeder shipments at United States public stockyards, 1924–33*

RECEIPTS

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
1924	1,697	1,412	1,367	1,348	1,344	1,550	1,672	2,005	3,027	3,295	1,879	1,605	22,201
1925	1,467	1,388	1,504	1,541	1,689	1,603	1,699	2,064	2,627	3,198	1,712	1,608	22,100
1926	1,548	1,486	1,694	1,502	1,717	1,913	1,739	2,277	3,279	3,090	1,917	1,706	23,868
1927	1,740	1,501	1,558	1,486	2,013	1,816	1,676	2,209	2,848	3,587	1,896	1,609	23,939
1928	1,705	1,669	1,520	1,591	1,952	1,913	1,898	2,362	3,386	3,938	2,053	1,610	25,597
1929	1,877	1,544	1,527	2,012	2,173	1,752	2,119	2,545	3,355	4,093	2,168	1,703	26,868
1930	1,903	1,803	2,151	2,230	2,334	2,230	2,296	2,583	3,580	3,784	2,607	2,307	29,808
1931	2,175	1,964	2,120	2,713	2,810	2,587	2,535	3,270	3,900	3,956	2,811	2,182	33,023
1932	2,363	2,035	2,115	2,412	2,429	2,428	2,240	2,919	3,239	3,266	2,203	1,657	29,306
1933	1,914	1,795	1,844	2,097	2,403	2,091	2,228	2,795	2,911	3,268	2,064	1,774	27,184

STOCKER AND FEEDER SHIPMENTS

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1924	149	106	83	105	118	152	226	444	973	1,438	676	206	4,676
1925	138	119	94	109	178	137	193	421	857	1,392	475	219	4,332
1926	155	107	83	124	130	238	260	567	1,093	1,150	493	223	4,623
1927	207	136	140	118	259	257	215	389	943	1,560	497	174	4,895
1928	116	101	95	133	205	278	234	564	1,080	1,466	544	193	5,011
1929	188	115	122	210	218	226	231	639	1,027	1,831	575	183	5,565
1930	126	101	99	134	142	216	206	465	907	1,024	761	282	4,463
1931	184	105	103	189	176	289	243	718	1,262	1,181	655	182	5,287
1932	124	80	77	143	100	172	181	460	535	803	501	196	3,373
1933	108	82	67	107	130	100	108	347	498	857	461	143	3,008

Bureau of Agricultural Economics. Compiled from data of livestock and meat-reporting service of Bureau.

TABLE 355.—*Sheep: Average price per 100 pounds received by producers, United States, 1924–33*

Year	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Weighted average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924	6.71	6.82	7.22	7.45	7.33	7.09	6.60	6.32	6.30	6.32	6.39	6.84	6.81
1925	7.86	8.41	8.20	8.42	7.53	7.04	7.17	7.32	7.27	7.31	7.51	7.79	7.70
1926	7.95	8.20	7.66	7.67	7.78	7.56	7.09	6.92	7.13	6.93	6.75	6.95	7.43
1927	6.87	7.16	7.41	7.40	7.68	7.27	7.16	7.13	7.06	7.05	7.42	7.38	7.26
1928	7.52	7.60	7.85	8.11	8.09	7.84	7.56	7.53	7.58	7.50	7.50	7.29	7.68
1929	7.84	7.98	8.36	8.40	8.09	7.86	7.25	7.32	7.01	6.83	6.75	6.61	7.55
1930	6.91	6.84	6.59	6.44	5.86	5.52	4.65	4.13	4.21	3.93	3.98	3.96	5.36
1931	4.04	4.15	4.24	4.24	3.91	3.28	3.01	3.00	2.80	2.63	2.63	2.52	3.43
1932	2.48	2.67	2.91	2.86	2.52	2.36	2.37	2.19	2.17	2.03	2.06	2.04	2.40
1933	2.10	2.16	2.18	2.29	2.47	2.46	2.59	2.57	2.52	2.46	2.38	2.48	2.37

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by number of sheep Jan. 1, to obtain a price for the United States; yearly price obtained by weighting monthly prices by Federal inspected slaughter. For previous data see 1930 or earlier Yearbooks.

TABLE 356.—*Lambs: Average price per 100 pounds received by producers, United States, 1924–25 to 1933–34*

Year	June 15	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	Weighted average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924–25	11.21	10.50	10.15	10.18	10.35	10.55	10.96	12.69	13.13	13.48	12.22	11.99	11.45
1925–26	11.62	11.71	11.80	11.95	12.04	12.20	12.67	12.79	12.02	11.56	11.32	11.78	11.98
1926–27	12.07	11.52	11.12	11.32	11.31	11.11	10.92	10.65	10.84	11.55	11.97	11.92	11.36
1927–28	11.95	11.44	11.15	11.14	11.22	11.42	11.39	11.34	11.90	12.31	12.73	13.03	11.76
1928–29	13.18	12.25	11.88	11.97	11.57	11.50	11.41	12.23	12.60	13.12	13.36	12.79	12.31
1929–30	12.31	11.90	11.46	11.08	10.97	10.74	10.76	11.10	10.46	9.63	9.02	8.92	10.71
1930–31	9.02	8.08	6.82	6.67	6.15	6.21	6.18	6.30	6.59	6.84	6.94	6.96	6.92
1931–32	6.42	5.60	5.33	5.04	4.64	4.46	4.19	4.43	4.58	5.05	5.13	4.78	4.97
1932–33	4.49	4.37	4.11	4.11	3.95	3.91	3.95	4.09	4.19	4.27	4.34	4.72	4.21
1933–34	5.18	5.24	5.26	5.08	5.01	4.95	4.92	------	------	------	------	------	--------

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by number of lambs Jan. 1, to obtain a price for the United States; yearly price obtained by weighting monthly prices by receipts at principal markets. For previous data see 1930 or earlier Yearbooks.

TABLE 357.—*Sheep and lambs: Average price per 100 pounds at Chicago, by months, 1924–33*

SHEEP

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average [1]
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924	8.16	9.12	10.50	10.21	8.11	5.82	5.66	6.18	5.46	6.60	6.62	8.45	7.57
1925	10.33	9.69	9.22	7.84	7.96	6.25	7.48	6.83	6.95	7.64	8.16	9.57	8.16
1926	9.72	9.18	8.82	8.87	7.97	5.85	5.97	6.50	6.25	6.12	5.88	5.86	7.25
1927	6.94	8.03	8.88	9.62	7.44	5.88	6.25	6.47	6.14	6.00	6.40	6.41	7.04
1928	7.03	8.96	9.47	10.16	8.53	6.12	6.28	6.72	6.34	6.18	5.84	7.03	7.39
1929	9.32	8.78	9.72	10.34	6.78	6.28	5.85	5.34	4.56	4.70	5.38	5.41	6.87
1930	6.50	5.53	5.59	5.66	5.31	3.38	3.12	3.53	3.50	3.10	3.34	3.22	4.32
1931	3.97	4.25	4.54	3.90	2.78	1.62	2.50	2.03	1.58	1.94	2.16	2.18	2.79
1932	2.62	3.25	3.75	3.06	1.41	1.65	1.66	1.92	1.62	1.59	1.82	2.08	2.20
1933	2.30	2.34	2.48	2.38	2.51	2.34	2.09	2.25	2.14	2.03	2.18	2.55	2.30

LAMBS

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average [1]
1924	13.53	14.95	16.06	16.22	15.23	14.12	13.79	13.57	13.38	13.52	14.03	16.47	14.57
1925	18.28	17.59	16.28	14.85	13.06	15.86	15.11	14.88	15.19	15.20	15.44	16.15	15.66
1926	15.28	13.78	13.48	14.38	15.30	16.66	14.31	14.20	14.05	13.88	13.25	12.57	14.26
1927	12.64	13.28	15.27	15.87	14.75	15.66	14.25	13.68	13.46	13.70	13.80	13.14	14.12
1928	13.16	15.39	16.26	16.81	16.10	16.84	15.61	14.72	14.29	13.12	13.31	14.31	14.99
1929	16.37	16.53	17.07	16.82	13.62	15.34	14.38	13.50	13.19	12.72	12.72	13.22	14.62
1930	13.28	11.03	10.28	9.38	9.73	12.28	10.18	9.39	8.24	7.72	7.34	7.44	9.69
1931	8.43	8.19	8.31	9.06	8.55	7.72	6.62	6.88	6.49	5.88	5.64	5.32	7.26
1932	5.88	6.26	6.83	6.69	5.12	6.26	6.22	5.72	5.56	5.12	5.60	5.82	5.92
1933	5.90	5.51	5.41	5.25	6.36	7.50	7.82	7.52	7.16	7.00	6.95	7.37	6.65

[1] Simple average of monthly prices.

Bureau of Agricultural Economics. Bulk of sales prices from data of the livestock and meat reporting service of the Bureau.
Data for 1901–23 are available in 1932 Yearbook, p. 802, table 356.

TABLE 358.—*Sheep and lambs: Annual slaughter under Federal inspection, 1907–33, estimated equivalent of Federal inspection, 1900–1906, and estimated total slaughter (including farm) in United States, 1900–1933* [1]

Year	Federally inspected	Total [2]	Year	Federally inspected	Total [2]	Year	Federally inspected	Total [2]
	Thousands	*Thousands*		*Thousands*	*Thousands*		*Thousands*	*Thousands*
1900	8,940	12,015	1912	14,979	19,247	1923	11,529	14,862
1901	9,996	12,358	1913	14,406	18,520	1924	11,991	15,441
1902	10,519	13,038	1914	14,229	18,290	1925	12,001	15,454
1903	10,508	13,683	1915	12,212	15,756	1926	12,961	16,689
1904	10,046	13,126	1916	11,941	15,408	1927	12,883	16,589
1905	10,026	12,823	1917	9,345	12,149	1928	13,488	17,348
1906	10,385	13,371	1918	10,320	13,359	1929	14,023	18,048
1907	10,252	13,360	1919	12,691	16,317	1930	16,697	21,132
1908	10,305	13,526	1920	10,982	14,180	1931	18,071	23,038
1909	11,343	14,725	1921	13,005	16,710	1932	17,899	22,945
1910	11,408	14,797	1922	10,929	14,112	1933	17,354	---------
1911	14,020	18,057						

[1] Federal Meat Inspection Act, effective Oct. 1, 1906.
[2] Subject to revision.

Bureau of Animal Industry and Bureau of Agricultural Economics.
Data for years 1880–99 last printed in 1933 Yearbook.

TABLE 359.—*Sheep and lambs: Shipments, slaughter, value of production, and income, by States, 1932*

State and division	Shipments and local slaughter				Inshipments, stocker, feeding, and breeding			
	Sheep		Lambs		Sheep		Lambs	
	Head	Total weight	Head	Total weight	Head	Total weight	Head	Total weight
	Thousands	*1,000 pounds*	*Thousands*	*1,000 pounds*	*Thousands*	*1,000 pounds*	*Thousands*	*1,000 pounds*
Maine	14	1,400	14	840	1	100	-----	-----
New Hampshire	4	400	3	180	-----	-----	-----	-----
Vermont	7	700	7	420	-----	-----	-----	-----
Massachusetts	1	110	3	195	1	100	-----	-----
Rhode Island	-----	-----	1	65	-----	-----	-----	-----
Connecticut	2	220	1	65	-----	-----	-----	-----
New York	53	6,201	206	14,438	2	200	39	2,340
New Jersey	1	110	1	75	-----	-----	-----	-----
Pennsylvania	31	3,255	187	13,090	-----	-----	1	60
North Atlantic	113	12,396	423	29,368	4	400	40	2,400
Ohio	171	19,665	924	64,680	-----	-----	74	4,810
Indiana	81	9,720	590	50,150	6	600	149	9,685
Illinois	55	6,600	610	51,850	5	500	248	17,360
Michigan	130	15,600	712	60,520	5	500	128	8,704
Wisconsin	93	10,230	415	33,200	3	330	120	8,400
East North Central	530	61,815	3,251	260,400	19	1,930	719	48,959
Minnesota	112	12,376	795	65,969	5	500	210	12,600
Iowa	169	20,280	1,126	90,080	25	2,500	312	20,280
Missouri	65	7,150	923	69,225	6	630	169	10,985
North Dakota	4	440	677	50,775	54	5,400	20	1,300
South Dakota	44	4,840	490	36,750	5	550	23	1,725
Nebraska	59	6,770	1,353	119,024	20	1,800	1,249	74,940
Kansas	23	2,530	638	57,400	10	1,000	238	15,470
West North Central	476	54,386	6,002	489,223	125	12,380	2,221	137,300
North Central	1,006	116,201	9,253	749,623	144	14,310	2,940	186,259
Delaware	-----	-----	3	195	-----	-----	-----	-----
Maryland	3	330	68	5,440	-----	-----	3	195
Virginia	9	1,080	374	29,920	1	90	1	80
West Virginia	60	6,600	398	31,840	-----	-----	-----	-----
North Carolina	2	170	35	1,925	-----	-----	-----	-----
South Carolina	1	90	5	225	-----	-----	-----	-----
Georgia	2	170	5	250	-----	-----	-----	-----
Florida	3	255	4	200	-----	-----	-----	-----
South Atlantic	80	8,695	892	69,995	1	90	4	275
Kentucky	37	4,080	839	62,925	5	500	29	2,030
Tennessee	32	3,520	242	18,150	1	110	2	140
Alabama	1	80	13	650	-----	-----	-----	-----
Mississippi	9	720	10	500	-----	-----	-----	-----
Arkansas	6	630	14	840	-----	-----	-----	-----
Louisiana	7	651	14	700	2	180	-----	-----
Oklahoma	57	5,985	72	4,680	45	4,500	20	1,000
Texas	343	32,585	1,557	93,570	32	3,200	40	2,400
South Central	492	48,251	2,761	182,015	85	8,490	91	5,570
Montana	218	23,980	1,306	97,950	-----	-----	-----	-----
Idaho	328	37,720	1,731	138,480	150	15,000	615	39,975
Wyoming	103	10,618	1,387	90,175	12	1,200	45	2,925
Colorado	207	21,735	2,005	160,400	175	17,500	946	56,760
New Mexico	76	7,600	551	35,815	14	1,400	1	70
Arizona	43	4,601	259	19,425	-----	-----	-----	-----
Utah	52	5,564	810	56,700	9	900	87	6,090
Nevada	28	2,905	250	16,250	1	105	4	260
Washington	11	1,210	450	36,000	5	500	40	2,800
Oregon	252	26,964	1,084	82,384	6	660	-----	-----
California	172	17,200	1,894	142,400	40	3,600	300	18,000
Western	1,490	160,097	11,727	875,979	412	40,865	2,038	126,880
United States	3,181	345,640	25,056	1,906,980	646	64,155	5,113	321,384

TABLE 359.—*Sheep and lambs: Shipments, slaughter, value of production, and income, by States, 1932*—Continued

State and division	Farm slaughter				Value of amount consumed on farms	Receipts from sales	Gross income	Value of production
	Sheep		Lambs					
	Head	Total weight	Head	Total weight				
	Thousands	*1,000 pounds*	*Thousands*	*1,000 pounds*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Maine	2	200	10	600	10	116	126	109
New Hampshire			1	60	1	24	25	19
Vermont			3	180	2	42	44	38
Massachusetts	1	110	1	65	1	19	20	21
Rhode Island						5	5	5
Connecticut			1	65		16	16	15
New York	10	1,170	15	1,065	8	823	831	798
New Jersey			1	75	1	11	12	12
Pennsylvania	6	660	8	560	6	765	771	782
North Atlantic	19	2,140	40	2,670	29	1,821	1,850	1,799
Ohio	4	480	10	800	32	3,304	3,336	3,317
Indiana	1	125	1	80	5	2,241	2,246	2,164
Illinois	3	360	9	765	37	1,728	1,765	1,689
Michigan	1	120	8	600	12	2,839	2,851	2,937
Wisconsin	3	375	7	630	26	1,221	1,247	1,084
East North Central	12	1,460	35	2,875	112	11,333	11,445	11,191
Minnesota	4	496	6	486	24	2,644	2,668	2,614
Iowa	2	250	6	480	25	3,402	3,427	2,724
Missouri	2	240	4	300	15	2,803	2,818	2,749
North Dakota	4	480	8	640	32	1,786	1,818	1,942
South Dakota	4	440	6	450	26	1,512	1,538	1,686
Nebraska	3	345	5	375	25	2,554	2,579	2,253
Kansas	3	360	5	380	21	1,841	1,862	1,331
West North Central	22	2,611	40	3,111	168	16,542	16,710	15,299
North Central	34	4,071	75	5,986	280	27,875	28,155	26,490
Delaware			1	65	1	16	17	16
Maryland			2	160	4	341	345	346
Virginia	9	1,080	10	800	36	1,549	1,585	1,579
West Virginia	4	440	6	480	19	1,706	1,725	1,717
North Carolina	1	90	9	495	14	120	134	133
South Carolina			1	45	1	16	17	18
Georgia			3	150	4	21	25	21
Florida			1	50	1	18	19	21
South Atlantic	14	1,610	33	2,245	80	3,787	3,867	3,851
Kentucky	3	360	4	300	16	3,609	3,625	3,593
Tennessee	4	440	6	450	22	1,057	1,079	1,111
Alabama			3	150	3	44	47	51
Mississippi	1	80	3	150	5	47	52	52
Arkansas	1	105	2	120	4	56	60	63
Louisiana	1	93	4	200	6	52	58	76
Oklahoma	1	110	1	65	4	163	167	236
Texas	10	900	20	1,400	58	3,665	3,723	4,893
South Central	21	2,088	43	2,835	118	8,693	8,811	10,075
Montana	10	1,200	15	1,125	48	4,153	4,201	4,886
Idaho	10	1,150	20	1,600	71	3,741	3,812	3,850
Wyoming	12	1,320	25	1,750	84	3,769	3,853	3,680
Colorado	11	1,155	17	1,360	80	4,741	4,821	4,265
New Mexico	50	5,000	15	975	146	1,479	1,625	1,169
Arizona	85	9,095	35	2,625	324	1,016	1,340	1,088
Utah	30	3,210	20	1,500	104	2,074	2,178	1,273
Nevada	7	700	8	520	31	706	737	160
Washington	6	720	9	720	18	1,328	1,346	1,398
Oregon	11	1,210	16	1,216	47	3,662	3,709	3,356
California	30	3,000	30	2,310	121	6,160	6,281	6,003
Western	262	27,760	210	15,701	1,074	32,829	33,903	31,128
United States	350	37,669	401	29,437	1,581	75,005	76,586	73,343

Bureau of Agricultural Economics. Estimates of Division of Crop and Livestock Estimates and are preliminary. The figures on income as shown in tables 459 and 460 are computed from the data shown in this table. The difference between value of production and income arises from the fact that in computing value of production, allowance is made for changes in inventory numbers between the beginning and end of the year, while in computing income these changes are not used.

TABLE 360.—*Mutton and lamb: International trade, average 1925–29, annual 1929–32*

Country	Average, 1925–29		1929		1930		1931		1932 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 lbs.*	*1,000 lbs.*	*1,000 lbs.*	*1,000 lbs.*	*1,000 lbs.*	*1,000 lbs.*	*1,000 lbs.*	*1,000 lbs.*	*1,000 lbs.*	*1,000 lbs.*
New Zealand	301,079	0	305,951	0	381,914	0	387,861	0	431,292	0
Argentina	176,547	0	177,576	0	177,693	0	184,106	0	156,494	0
Australia [2]	72,153	17	84,929	24	100,411	0	109,253	0	165,281	0
Uruguay	41,048	0	49,267	0	62,304	0	40,312	0	13,484	0
Netherlands	14,942	1,049	12,859	692	11,342	550	11,015	598	8,698	349
Irish Free State	1,370	344	2,771	246	2,003	259	2,780	255	801	172
Union of South Africa	171	20	160	0	299	0	141	0	249	0
Total	607,310	1,430	633,513	962	735,966	809	735,468	853	776,299	521
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	0	629,309	0	642,712	0	730,271	0	813,107	0	797,794
France	213	22,035	140	21,280	143	27,679	448	38,116	384	20,909
Germany	637	7,868	3	9,129	2,457	9,679	1,480	342	94	442
United States	1,087	7,255	835	11,395	1,251	8,181	550	5,503	259	5,009
Norway	0	4,581	0	4,715	0	4,904	0	3,580	0	3,311
Belgium	702	3,763	1,125	4,875	1,724	4,391	592	4,756	105	6,468
Canada	1,501	2,335	573	4,401	242	4,412	333	1,294	348	702
Denmark	9	2,152	0	2,588	6	2,638	5	2,552	5	452
Sweden	36	1,058	38	953	25	1,515	7	1,837	1	1,330
Total	4,185	680,356	2,714	702,048	5,848	793,670	3,415	871,087	1,196	836,417

[1] Preliminary.
[2] Year ended June 30.

Bureau of Agricultural Economics; official sources.

TABLE 361.—*Wool: Estimated production in specified countries, average 1923–27, annual 1928–33*

Country	Average, 1923–27	1928	1929	1930	1931	1932	1933 [1]
SOUTHERN HEMISPHERE	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*
Australia	817.2	968.2	937.6	912.1	1,006.0	1,028.0	[2] 847.0
New Zealand [3] [4]	252.4	272.0	272.9	271.1	282.8	288.4	[5] 279.0
Chile	26.0	[3] 27.9	[3] 27.1	26.7	[3] 29.6	[3] 32.5	----------
Argentina [6]	322.5	336.0	311.0	334.0	324.0	331.0	348.3
Uruguay [3]	116.0	130.4	151.1	152.6	[7] 106.0	[7] 110.2	[7] 100.5
Union of South Africa [8]	236.8	310.9	303.8	305.0	306.0	316.3	[9] 255.0
Total 5 countries reporting to 1933	1,744.9	2,017.5	1,976.4	1,974.8	2,024.8	2,073.9	1,829.8
NORTHERN HEMISPHERE							
United States:							
Shorn	255.7	314.6	327.6	350.3	372.2	345.4	364.7
Pulled [10]	46.6	51.9	54.5	61.9	66.1	67.1	64.2
Total	302.3	366.5	382.1	412.2	438.3	412.5	428.9
Canada	16.6	19.6	20.3	21.0	20.4	20.5	[5] 19.4
Europe:							
United Kingdom [11]	103.3	112.3	110.4	109.0	111.0	117.0	119.0
Irish Free State	16.6	[11] 18.0	[11] 18.6	[11] 18.9	[11] 19.3	[11] 19.6	[5] 19.3
Norway	6.0	5.4	[5] 5.0	5.2	[5] 5.5	5.7	[5] 5.8
France	45.3	47.2	46.1	45.2	44.1	43.2	[5] 42.8
Spain [12]	73.3	(75.8)	73.2	(66.0)	66.1	[5] 70.0	----------
Italy [12]	57.4	52.3	49.6	47.9	44.0	([13])	----------

See footnotes at end of table.

TABLE 361.—*Wool: Estimated production in specified countries, average 1923–27, annual 1928–33*—Continued

Country	Average, 1923–27	1928	1929	1930	1931	1932	1933[1]
NORTHERN HEMISPHERE—con.							
Europe—Continued.	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*
Germany	45.8	33.6	31.9	[5] 30.6	[5] 30.8	[5] 30.8	30.0
Czechoslovakia [12]	3.9	3.7	3.7	3.7	2.7	2.3	2.0
Hungary	12.4	11.5	(11.5)	13.0	12.8	8.8	[5] 8.0
Yugoslavia [5]	29.7	28.0	28.0	28.0	28.8	30.5	30.8
Greece	13.3	[5] 13.7	[5] 15.6	[5] 12.2	14.6	14.9	[5] 14.6
Rumania [5]	49.3	49.2	48.6	47.1	46.5	47.0	----------
Poland [5]	9.3	9.6	10.4	9.6	9.8	9.5	9.6
Lithuania	4.5	4.1	3.5	3.2	3.6	[5] 3.8	[5] 3.8
Total 11 countries reporting to 1933	290.1	287.1	284.7	278.6	283.0	286.1	285.7
Africa and Asia: [14]							
Algeria	35.6	36.7	47.2	49.3	28.1	39.3	[5] 39.3
Turkey	10.6	8.5	5.0	14.1	14.8	10.2	14.0
Total 15 Northern Hemisphere countries reporting to 1933	655.2	718.4	739.3	775.2	784.6	768.6	787.3
Total 20 Northern and Southern Hemisphere countries reporting to 1933	2,400.1	2,735.9	2,715.7	2,750.0	2,809.4	2,842.5	2,617.1
Estimated world total excluding Russia and China [15]	2,917.0	3,259.0	3,215.0	3,267.0	3,320.0	[16] 3,353.0	----------
Russia	266.0	392.0	394.0	306.0	[17] 220.0	[17] 150.0	[17] 140.0
China [18]	49.0	65.0	50.0	26.0	32.0	----------	----------

[1] Preliminary.
[2] Revision of Nov. 10 made at a conference between the presidents of the National Council of Wool Selling Brokers and National Council of Wool Growers of Australia after all selling centers had carefully reviewed their figures. Subject to still further revision if conditions warrant it.
[3] Estimates based on exports alone or exports, stocks, and domestic consumption and any other available information.
[4] Years 1924 to 1927 supplied by the Empire Marketing Board. Years 1927–28 to 1931–32 official Yearbook of New Zealand 1933 and Monthly Abstract of New Zealand Statistics, August 1933. The estimates of Dalgety & Co. used formerly are as follows in millions of pounds, with scoured wool included at its scoured weight: Average 1923–27, 210.0; 1928, 239.0; 1929, 241.8; 1930, 265.7; 1931, 265.5; 1932, 365.5.
[5] Estimates based on sheep numbers at date nearest shearing and other available data.
[6] Estimates of the Buenos Aires branch of the First National Bank of Boston, based on exports, stocks, and domestic consumption.
[7] Estimates supplied by Assistant Agricultural Commissioner C. L. Luedtke.
[8] Estimates of C. C. Taylor, formerly United States agricultural attaché in South Africa.
[9] Tentative official revision of original estimate.
[10] Published as reported by pulleries and is mostly washed. The U.S. Bureau of the Census considers 1 pound of pulled wool the equivalent of 1⅓ pounds of grease.
[11] Estimates of the Empire Marketing Board.
[12] Revisions based on recent census figures of wool production or of sheep numbers.
[13] Yield estimated to be considerably below 1932, according to Trade Commissioner Elizabeth Humes.
[14] Estimates for Asiatic countries rough approximations only.
[15] Totals subject to revision. Few countries publish official estimates of wool production. In the absence of official figures for many countries various estimates have been used. Some have been furnished by United States Government representatives abroad and others have been based on reports of sheep numbers, average fleece weights, and any other available data. For some principal exporting countries the figures are seasonal exports alone, or estimates derived from exports, carry-over, and domestic consumption. In the case of most Asiatic countries the figures are rough commercial estimates.
[16] Estimate based on production in 34 countries as compared with 1931.
[17] Estimate based on sheep numbers and average yield as derived from official estimates for recent years. The Union Soviet Socialist Republics program called for 353,000,000 pounds in 1931 according to the Economic Handbook of the Soviet Union, but this estimate appears much too large considering the decrease in sheep numbers since 1929.
[18] Exports of sheep's wool only.

Bureau of Agricultural Economics.
This table includes wool shorn during the calendar year in the Northern Hemisphere and that shorn during the season beginning July 1 or October of the given calendar year in the Southern Hemisphere, the bulk being shorn during the last 6 months of the given calendar year. Pulled wool is included in the total for most important countries at its grease equivalent. Figures in parenthesis are interpolated. See Foreign Crops and Markets annual wool review in May or June 1934 for table showing all countries and monthly World Wool Prospects for current revisions.

TABLE 362.—*Wool, shorn: Estimated production by States, 1931–33*

State and division	Production			Number of fleeces [1]			Weight per fleece [2]		
	1931	1932	1933	1931	1932	1933	1931	1932	1933
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*Thousands*	*Thousands*	*Thousands*	*Pounds*	*Pounds*	*Pounds*
Maine	491	444	384	78	74	64	6.3	6.0	6.0
New Hampshire	107	101	88	17	16	14	6.3	6.3	6.3
Vermont	252	238	208	37	35	32	6.8	6.8	6.5
Massachusetts	59	59	59	10	10	10	5.9	5.9	5.9
Rhode Island	12	12	12	2	2	2	5.9	5.9	6.0
Connecticut	51	50	50	9	9	9	5.7	5.6	5.6
New York	3,008	2,736	2,701	412	380	370	7.3	7.2	7.3
New Jersey	43	36	37	7	6	6	6.2	6.0	6.2
Pennsylvania	3,248	3,270	3,411	433	436	461	7.5	7.5	7.4
North Atlantic	7,271	6,946	6,950	1,005	968	968	7.2	7.2	7.2
Ohio	15,453	15,455	15,810	1,818	1,908	1,928	8.5	8.1	8.2
Indiana	4,980	4,782	4,599	673	655	630	7.4	7.3	7.3
Illinois	4,843	4,559	5,749	647	619	818	7.5	7.4	7.0
Michigan	8,526	8,282	7,840	1,015	1,010	980	8.4	8.2	8.0
Wisconsin	3,205	3,145	2,774	439	425	380	7.3	7.4	7.3
East North Central	37,007	36,223	36,772	4,592	4,617	4,736	8.1	7.8	7.8
Minnesota	6,591	6,638	6,814	845	885	885	7.8	7.5	7.7
Iowa	7,920	7,901	7,410	990	1,013	938	8.0	7.8	7.9
Missouri	7,304	7,048	7,351	1,090	1,054	1,109	6.7	6.7	6.6
North Dakota	7,012	7,636	7,056	825	920	840	8.5	8.3	8.4
South Dakota	8,820	8,768	9,200	1,050	1,096	1,150	8.4	8.0	8.0
Nebraska	2,786	1,885	2,731	380	254	366	7.3	7.4	7.5
Kansas	3,243	3,168	3,461	475	463	505	6.8	6.8	6.9
West North Central	43,676	43,044	44,023	5,655	5,685	5,793	7.7	7.6	7.6
North Central	80,683	79,267	80,795	10,247	10,302	10,529	7.9	7.7	7.7
Delaware	24	24	24	4	4	4	6.0	6.0	6.0
Maryland	552	570	583	89	92	94	6.2	6.2	6.2
Virginia	2,225	2,185	2,166	445	446	442	5.0	4.9	4.9
West Virginia	3,021	2,994	3,021	570	565	581	5.3	5.3	5.2
North Carolina	394	346	369	82	77	82	4.8	4.5	4.5
South Carolina	52	48	48	12	12	12	4.3	4.0	4.0
Georgia	112	112	112	33	31	31	3.4	3.6	3.6
Florida	111	115	114	37	37	38	3.0	3.1	3.0
South Atlantic	6,491	6,394	6,437	1,272	1,264	1,284	5.1	5.1	5.0
Kentucky	4,233	4,250	4,170	830	850	834	5.1	5.0	5.0
Tennessee	1,531	1,533	1,621	348	365	377	4.4	4.2	4.3
Alabama	143	144	151	42	40	42	3.4	3.6	3.6
Mississippi	274	257	257	83	78	78	3.3	3.3	3.3
Arkansas	198	220	230	44	49	51	4.5	4.5	4.5
Louisiana	443	403	402	123	112	115	3.6	3.6	3.5
Oklahoma	1,069	1,102	1,154	137	145	148	7.8	7.6	7.8
Texas	53,360	57,105	74,800	6,836	7,050	7,875	7.8	8.1	9.5
South Central	61,251	65,014	82,785	8,443	8,689	9,520	7.3	7.5	8.7
Montana	38,313	32,300	33,276	3,870	3,400	3,540	9.9	9.5	9.4
Idaho	19,419	16,500	17,372	2,134	1,940	2,020	9.1	8.5	8.6
Wyoming	36,000	31,513	29,808	3,600	3,463	3,240	10.0	9.1	9.2
Colorado	13,541	12,320	12,774	1,736	1,600	1,539	7.8	7.7	8.3
New Mexico	16,632	16,884	17,430	2,520	2,520	2,490	6.6	6.7	7.0
Arizona	5,520	5,220	4,988	920	870	860	6.0	6.0	5.8
Utah	23,940	18,160	17,630	2,660	2,270	2,050	9.0	8.0	8.6
Nevada	8,880	7,125	6,708	1,110	950	860	8.0	7.5	7.8
Washington	6,192	5,506	5,640	645	605	613	9.6	9.1	9.2
Oregon	22,000	17,982	18,105	2,500	2,220	2,130	8.8	8.1	8.5
California	26,095	24,219	24,032	3,622	3,370	3,128	7.2	7.2	7.7
Western	216,532	187,729	187,763	25,317	23,208	22,470	8.6	8.1	8.4
United States	372,228	345,350	364,730	46,284	44,431	44,771	8.0	7.8	8.2

[1] Include fleeces taken at commercial feeding plants. California figures include some fleeces taken from early lambs.

[2] In States where sheep are shorn twice a year, principally Texas and California, this figure covers wool per head of sheep shorn and not weight per fleece.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 363.—*Wool: International trade, average 1925–29, annual 1930–32*

Country	Calendar year							
	Average, 1925–29		1930		1931		1932 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Australia [2]	739, 123	3, 990	851, 762	2, 393	812, 265	1, 170	855, 138	--------
Argentina	294, 973	302	297, 643	116	310, 252	84	289, 878	101
Union of South Africa	254, 431	576	281, 898	245	242, 092	612	379, 095	1, 006
New Zealand	220, 228	103	197, 240	13	211, 719	6	238, 179	27
Uruguay	117, 856	0	172, 657	0	144, 572	0	95, 120	0
China	58, 272	568	30, 743	210	35, 310	747	8, 130	270
British India	50, 373	27, 843	32, 193	14, 461	38, 785	5, 849	30, 903	[3] 6, 143
Chile	26, 196	435	21, 082	447	22, 377	163	25, 040	52
Algeria	24, 047	3, 632	18, 592	2, 043	10, 585	1, 565	7, 001	1, 466
Morocco	13, 345	0	4, 024	0	2, 536	0	--------	0
Irish Free State	12, 706	1, 282	7, 283	779	10, 877	926	9, 938	946
Persia [4]	11, 918	1, 380	12, 621	399	11, 543	1	--------	--------
Hungary	11, 715	1, 643	8, 718	1, 648	7, 194	1, 616	2, 811	1, 983
Brazil	11, 021	--------	16, 229	--------	15, 412	--------	3, 907	--------
Peru	10, 760	1	7, 151	5	9, 287	1	9, 212	--------
Spain	9, 715	4, 918	6, 051	7, 320	2, 677	10, 643	2, 310	14, 945
Egypt and Sudan	3, 997	[5] −127	2, 288	[5] −81	3, 578	[5] −92	1, 962	[5] −4
Tunis	2, 982	1, 383	1, 039	1, 280	1, 172	491	651	600
Total	1, 873, 658	47, 929	1, 969, 214	31, 278	1, 892, 233	23, 782	1, 959, 275	27, 535
PRINCIPAL IMPORTING COUNTRIES								
France	53, 286	633, 028	52, 562	690, 269	56, 971	570, 223	39, 453	563, 244
United Kingdom	54, 037	473, 061	32, 661	513, 619	35, 771	600, 730	42, 122	614, 227
Germany	24, 109	361, 447	23, 384	347, 966	30, 476	326, 575	14, 363	318, 666
United States	322	288, 346	162	163, 734	274	158, 385	179	56, 535
Belgium	19, 091	135, 887	33, 410	159, 166	33, 121	137, 189	58, 352	147, 266
Italy	7, 188	99, 134	4, 314	119, 587	6, 985	105, 094	3, 001	158, 804
Japan	0	93, 489	0	115, 025	0	189, 714	0	205, 178
Russia	[2] 4, 024	46, 095	86	72, 139	0	67, 747	--------	56, 764
Czechoslovakia	3, 381	35, 889	1, 813	39, 530	2, 422	40, 220	1, 376	32, 613
Poland	1, 398	30, 255	334	32, 403	261	35, 345	107	29, 321
Switzerland	45	17, 404	50	19, 790	643	18, 402	240	22, 016
Austria	973	16, 490	372	16, 611	158	13, 137	77	16, 714
Canada	7, 307	13, 930	4, 382	9, 459	4, 770	10, 849	3, 712	8, 717
Sweden	241	10, 826	234	10, 562	217	11, 735	309	12, 431
Netherlands	2, 830	10, 518	2, 268	16, 786	3, 062	16, 335	2, 990	16, 613
Yugoslavia	117	5, 559	67	7, 269	75	6, 535	195	2, 895
Rumania	1, 287	[6] 4, 011	1, 220	3, 860	971	3, 204	393	1, 601
Denmark	355	2, 808	94	3, 299	142	4, 041	169	4, 650
Finland	--------	2, 806	--------	2, 075	--------	2, 269	--------	3, 391
Bulgaria	3	2, 699	35	2, 056	18	3, 685	--------	5, 218
Greece	641	2, 063	624	2, 803	300	2, 901	510	1, 928
Norway	601	1, 812	214	1, 771	237	1, 835	129	1, 995
Total	181, 236	2, 287, 557	158, 286	2, 349, 779	176, 874	2, 326, 150	167, 677	2, 280, 787

[1] Preliminary.
[2] International Yearbook of Agricultural Statistics.
[3] Sea trade only since Sept. 30, 1931.
[4] Figures for Persia are for 12 months ended Mar. 21 of the year following year shown for 1925–29 average and 1930; 1931 figures are for year ended June 21, 1932.
[5] Excess of reexports over imports.
[6] 4-year average.

Bureau of Agricultural Economics; official sources except where otherwise noted.

"Wool" in this table includes: washed, unwashed, scoured, pulled wool, slips, also hair—camel's, mohair, angora goat, cashmere goat, and alpaca. The following items have been considered as not within this classification: Carded, combed, dyed wool, flocks; sheep, lamb, and goat skins with hair on, mill waste, noils, and tops.

TABLE 364.—*Wool, shorn: Average price per pound received by producers, United States, 1924–33*

Year	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924	36.6	37.5	38.2	38.4	37.4	36.0	34.3	33.5	35.5	37.3	40.1	42.2	36.9
1925	42.8	43.2	43.0	40.8	36.9	35.7	39.4	38.1	37.8	37.2	37.8	39.5	38.5
1926	38.9	37.7	34.7	33.2	32.0	31.4	31.9	31.9	32.6	31.6	31.6	30.1	32.5
1927	30.9	31.1	31.3	30.4	30.1	30.2	30.7	31.2	31.2	30.9	31.1	32.0	30.7
1928	33.2	34.4	35.4	35.6	37.0	38.7	37.6	37.0	36.5	36.0	35.9	35.6	36.7
1929	35.9	35.9	35.5	33.8	31.3	30.2	29.4	29.2	29.0	28.6	28.5	27.8	30.9
1930	27.4	25.9	23.7	21.4	19.6	19.2	19.2	19.8	20.2	19.6	19.0	18.4	20.3
1931	17.4	16.4	15.9	15.6	14.4	13.0	12.7	13.1	13.2	12.5	13.1	12.9	13.9
1932	12.5	13.0	12.5	11.0	8.8	7.2	7.0	7.4	9.1	9.5	9.4	9.2	9.0
1933	8.9	8.8	8.9	10.1	17.7	21.3	22.4	22.5	23.0	23.6	23.8	24.2	18.6

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by number of sheep Jan. 1, to obtain a price for the United States; yearly price obtained by using estimates of the Division of Crop and Livestock Estimates and the Division of Statistical and Historical Research.

TABLE 365.—*Wool: Average price per pound in Boston market, 1924–33*

SCOURED BASIS, TERRITORY, GRADES 64's, 70's, 80's (FINE STRICTLY COMBING)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924	139	139	142	138	135	129	130	137	142	147	154	164	141
1925	168	164	153	138	126	130	137	132	129	128	131	131	139
1926	127	124	118	116	112	110	116	116	116	116	114	110	116
1927	110	110	110	109	108	108	111	111	111	112	112	112	110
1928	116	116	116	117	119	120	120	115	112	112	113	114	116
1929	114	110	108	104	100	97	94	94	93	90	88	84	98
1930	82	79	78	76	75	76	76	76	76	75	73	72	76
1931	68	66	66	66	64	62	62	64	62	59	59	59	63
1932	58	56	54	49	44	38	36	41	48	48	47	45	47
1933	44	44	46	48	62	70	77	79	82	83	84	85	67

SCOURED BASIS, TERRITORY, GRADE 56's (THREE-EIGHTHS BLOOD STRICTLY COMBING)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1924	113	116	116	113	109	97	100	109	113	117	122	133	113
1925	136	136	125	109	96	99	105	101	102	102	108	109	110
1926	103	99	93	91	89	89	90	90	91	93	93	91	92
1927	90	90	90	90	88	88	90	91	91	94	94	94	91
1928	97	99	100	106	107	108	107	103	104	104	104	104	104
1929	104	104	101	95	89	88	88	90	90	89	87	82	92
1930	75	70	67	64	62	62	62	62	62	60	59	58	63
1931	55	52	51	51	48	46	49	51	51	48	48	48	50
1932	49	49	46	42	37	32	30	34	43	42	41	39	40
1933	38	37	38	41	56	63	70	72	76	78	79	82	61

GREASE BASIS, OHIO AND SIMILAR, GRADE 56's (THREE-EIGHTHS BLOOD STRICTLY COMBING)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1924	55	56	57	55	53	49	48	53	55	59	63	69	56
1925	70	69	66	55	46	49	53	52	50	52	54	54	56
1926	54	53	49	46	44	43	44	44	44	45	46	45	46
1927	45	45	45	44	42	42	43	44	45	46	47	48	45
1928	50	52	52	53	55	57	56	55	55	55	56	56	54
1929	56	55	54	50	45	44	45	45	45	45	44	42	48
1930	39	36	34	32	29	30	30	30	30	30	29	28	31
1931	26	25	24	23	22	22	22	23	24	24	24	24	24
1932	24	23	22	20	17	15	14	17	22	22	20	20	20
1933	20	20	19	20	29	33	34	36	39	41	41	42	31

Bureau of Agricultural Economics. Prices from the livestock and meat reporting service of the Bureau.

TABLE 366.—*Wool: Production, exports, imports, and amount available for consumption, of combing and clothing wool, and imports of carpet wool, United States, 1910–33*

Calendar year	Combing and clothing						Carpet, imports, less reexports
	Production			Total exports, domestic [1]	Imports, less reexports [1]	Available for consumption [2]	
	Shorn	Pulled	Total				
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
1910	281,363	40,000	321,363	[3] 48	94,374	415,689	76,705
1911	277,548	41,000	318,548	([4])	50,928	369,476	101,484
1912	262,543	41,500	304,043	([4])	111,653	415,696	124,649
1913	252,675	43,500	296,175	[3] 77	61,306	357,404	86,416
1914	247,192	43,000	290,192	[3] 335	165,882	455,739	84,277
1915	245,726	40,000	285,726	[3] 8,158	307,354	584,922	93,175
1916	244,890	43,600	288,490	3,919	364,355	648,896	76,167
1917	241,892	40,000	281,892	1,827	341,864	621,929	73,002
1918	256,870	42,000	298,870	407	377,682	676,145	69,292
1919	249,958	48,300	298,258	2,840	336,774	632,192	96,873
1920	250,617	42,900	293,517	8,845	207,419	492,091	35,093
1921	241,465	48,500	289,965	1,927	217,233	505,271	97,820
1922	228,109	42,000	270,109	453	189,486	459,142	172,828
1923	229,895	42,500	272,395	535	243,270	515,130	121,518
1924	237,131	43,800	280,931	309	94,495	375,117	140,684
1925	252,832	46,800	299,632	273	171,980	471,339	157,579
1926	268,900	49,600	318,500	292	170,142	488,350	115,235
1927	289,909	50,100	340,009	323	109,850	449,536	143,871
1928	314,588	51,900	366,488	485	87,132	453,135	148,794
1929	327,566	54,500	382,066	239	100,352	482,179	174,483
1930	350,311	61,900	412,211	162	68,000	480,049	92,756
1931	372,228	66,100	438,328	274	36,772	474,826	119,939
1932	345,350	67,100	412,450	179	12,020	424,381	40,697
1933	364,730	64,200	428,930	19	43,553	472,464	130,256

[1] Hair of angora goat, alpaca, and other like animals included in exports for all years.
[2] In computing these figures, stocks not taken into consideration.
[3] Exports for fiscal year ended June 30 of the year shown.
[4] No transactions.

Bureau of Agricultural Economics. Production figures, 1910–13, from the National Association of Wool Manufacturers; beginning 1914, from the Bureau; imports and exports from the Bureau of Foreign and Domestic Commerce.

NOTE.—The total United States production is combing and clothing wool only.

TABLE 367.—*Wool, grades 56's, 64's–67's: Average price per pound at London, clean basis, 1924–33*

GRADE 56's

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924	80.90	84.20	85.00	83.75	82.50	82.00	81.50	87.15	92.80	101.00	105.00	111.30	89.76
1925	105.00	90.80	89.00	80.90	72.80	73.85	74.90	70.75	66.60	66.60	66.60	66.60	77.03
1926	60.80	60.80	60.80	59.80	58.30	56.80	58.80	59.80	60.80	59.80	57.00	58.80	59.36
1927	58.80	68.00	71.00	66.00	66.90	67.40	67.90	68.40	68.90	70.95	73.00	75.00	68.52
1928	77.00	80.00	81.10	79.55	78.00	77.50	77.00	74.00	71.00	70.00	73.00	74.00	76.01
1929	75.00	69.95	63.90	61.80	58.80	56.75	54.70	52.70	50.69	46.64	50.69	50.69	57.69
1930	40.55	40.55	34.47	35.48	37.51	37.00	36.00	34.50	32.44	30.42	26.36	26.36	34.30
1931	21.29	24.33	29.91	28.39	26.36	25.35	24.84	23.32	21.29	20.26	24.02	21.09	24.20
1932	20.73	23.04	21.61	19.92	18.38	18.23	19.60	20.64	21.69	20.52	19.79	19.13	20.27
1933	20.66	21.03	19.67	21.63	24.99	28.00	32.94	33.77	36.93	38.90	51.50	51.16	31.76

GRADES 64's–67's

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.	Average
1924	117.90	121.80	121.60	122.00	123.15	122.68	122.20	130.75	139.30	138.00	148.40	150.30	129.84
1925	140.10	130.00	119.70	115.95	112.20	112.60	113.00	110.00	107.00	108.90	111.00	101.00	115.12
1926	97.30	97.30	97.30	98.10	97.70	97.30	94.30	94.80	95.30	93.30	92.75	90.75	95.51
1927	89.20	94.00	95.30	94.30	95.30	95.80	96.30	96.85	97.40	98.40	99.40	99.40	95.97
1928	101.40	102.00	103.40	102.40	101.40	101.40	101.40	98.35	95.30	90.00	93.30	91.20	98.46
1929	91.20	90.00	85.20	83.00	79.00	76.25	73.50	70.00	66.91	64.88	63.87	62.86	75.55
1930	54.75	54.75	50.69	52.72	55.76	54.70	52.70	51.70	50.69	50.69	44.61	41.57	51.28
1931	34.47	38.53	44.61	42.58	42.58	40.55	39.54	37.51	34.47	30.79	31.78	26.00	36.95
1932	29.31	30.24	29.57	28.91	27.56	27.35	28.10	29.33	31.10	29.72	27.98	27.32	28.87
1933	28.71	29.94	28.25	30.95	35.23	41.79	52.31	52.53	56.36	54.46	68.66	67.15	45.53

Bureau of Agriculture Economics. These data were obtained from prices given by Kreglinger & Fernau for the opening and closing of each series of the London wool sales. For months when no sales were held the figures are interpolations of nearest actual prices. Conversions at monthly average rate of exchange as given in Federal Feserve Bulletins to December 1925, and October 1931 to December 1933; others at par.

TABLE 368.—*Goats and mohair: Estimates of goats clipped, mohair produced, and average clip per goat (principal producing States), 1931–33*

State	Goats clipped			Mohair (including kid hair) produced			Average clip per goat clipped [1]		
	1931	1932	1933 [2]	1931	1932	1933 [2]	1931	1932	1933 [2]
	Thousands	*Thousands*	*Thousands*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*Pounds*	*Pounds*	*Pounds*
Texas [3]	3,680	3,421	3,342	16,400	14,000	13,700	4.5	4.2	4.1
New Mexico	236	250	245	933	1,000	1,020	4.0	4.0	4.2
Arizona	250	200	150	960	760	550	3.8	3.8	3.7
California	39	37	32	136	130	112	3.5	3.5	3.5
Oregon	115	115	87	472	460	350	4.1	4.0	4.0
Missouri	68	66	71	170	145	163	2.5	2.2	2.3
Total	4,388	4,089	3,927	19,071	16,495	15,895	4.3	4.0	4.0

[1] In States where goats are clipped twice a year figures include both spring and fall clip.
[2] Preliminary.
[3] Most goats clipped twice a year. In Texas, kids are clipped in fall of year of birth. Figures include both goats and kids clipped.

Bureau of Agricultural Economics; estimates of Crop Reporting Board.

TABLE 369.—*Imported meat and meat food products, Federally inspected and passed, United States, 1924–33*

Year ended June 30	Chilled and frozen fresh meats		Canned and cured meats	Other meat products	Total weight
	Beef	Other			
	Pounds	*Pounds*	*Pounds*	*Pounds*	*Pounds*
1924	18,105,128	8,489,138	10,648,605	1,391,060	38,633,931
1925	5,612,600	11,827,557	12,857,043	2,877,640	33,174,840
1926	9,975,359	12,402,230	19,258,401	3,144,968	44,780,958
1927	14,956,143	22,508,681	43,714,607	5,454,741	86,634,172
1928	38,168,121	18,880,547	63,189,480	12,102,635	132,340,783
1929	53,085,288	15,704,658	89,511,853	11,563,215	169,865,014
1930	23,909,708	6,783,637	98,128,169	8,065,195	136,886,709
1931	2,612,713	1,314,170	23,854,583	5,651,509	33,423,975
1932	540,141	1,402,900	25,465,159	3,530,632	30,938,832
1933	404,510	942,227	33,254,553	2,644,628	37,245,918

Bureau of Animal Industry.

TABLE 370.—*Livestock: Number of animals slaughtered under Federal inspection and number of whole carcasses condemned,[1] 1924–33*

Year ended June 30	Cattle		Calves		Sheep and lambs		Goats		Hogs		Horses		Total slaughter
	Slaughter	Condemned	Slaughter	Condemned	Slaughter	Condemned	Slaughter	Condemned	Slaughter	Condemned	Slaughter	Condemned	
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
1924	9,189	83.9	4,668	12.7	11,505	12.9	31	0.3	54,416	232.7	5	0.0	79,814
1925	9,774	92.1	5,185	11.1	12,203	12.7	27	.1	48,460	180.4	12	.0	75,660
1926	10,098	103.6	5,312	11.9	12,354	14.5	43	.1	40,443	143.0	40	.1	68,289
1927	10,050	83.5	5,080	10.6	12,894	16.4	30	.1	42,650	173.6	43	.2	70,747
1928	9,040	69.4	4,774	9.9	12,984	15.4	20	.1	48,347	154.2	107	.3	75,273
1929	8,284	61.9	4,526	8.9	13,769	20.1	21	.1	47,164	139.4	117	.4	73,881
1930	8,281	59.5	4,491	9.5	15,307	22.9	22	.1	46,689	135.4	136	.5	74,926
1931	8,209	52.4	4,732	9.1	17,300	18.5	9	.1	44,021	121.8	135	.7	74,406
1932	7,975	53.8	4,605	10.2	18,660	17.6	8	.0	45,852	139.9	100	.3	77,200
1933	7,736	54.0	4,548	12.4	17,284	16.6	7	.0	45,698	132.6	50	.2	75,323

[1] The numbers of condemned carcasses are expressed in thousands and tenths; that is, the last figure represents hundreds. These figures do not include parts of carcasses, data concerning which may be obtained from the Bureau of Animal Industry.

Bureau of Animal Industry.

TABLE 371.—*Meat and meat products: International trade, average 1925–29, annual 1930–32*

Country	Calendar year							
	Average, 1925–29		1930		1931		1932[1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Argentina	2,028,126	465	1,552,620	323	1,544,619	348	1,436,880	101
United States	1,421,054	147,765	1,183,014	97,764	978,632	51,672	865,549	51,765
Denmark	640,468	26,692	875,694	28,156	1,073,373	28,583	1,069,983	21,405
Netherlands	534,982	206,537	438,879	175,253	480,223	165,396	352,509	96,864
New Zealand	442,571	1,102	514,666	1,027	519,769	689	581,727	790
Uruguay	396,117	15	469,543	0	268,654	0	229,642	0
Australia[2]	380,162	6,691	344,543	4,212	350,546	7,411	446,075	1,910
Canada	144,720	27,305	35,045	39,835	34,147	13,962	62,440	10,037
Brazil	131,003	10,511	288,230	6,953	184,108	2,786	116,866	695
Irish Free State	105,959	66,964	89,190	62,753	94,144	65,210	68,239	27,122
Poland	71,019	45,836	106,227	39,860	189,409	6,585	146,344	3,085
Sweden	61,961	46,886	87,322	50,599	91,086	47,287	67,750	46,371
China	48,376	3,672	43,906	3,563	48,167	3,436	22,486	4,558
Chile	40,829	4,206	41,134	2,133	29,892	2,776	34,295	--------
Hungary	33,182	6,733	32,709	5,521	20,116	6,276	13,262	5,341
Yugoslavia	27,751	9,664	15,566	10,264	17,763	8,715	16,800	10,906
Union of South Africa	24,581	15,118	32,102	11,369	23,648	19,053	17,224	6,377
Rumania	21,413	1,948	20,478	1,754	13,094	2,017	5,987	1,111
Estonia	6,888	1,455	4,230	1,959	9,500	514	10,214	214
Total	6,561,162	629,565	6,175,098	543,298	5,970,890	432,716	5,564,272	288,652
Total beef	2,869,621	289,138	2,479,983	235,735	2,177,507	200,164	1,933,701	120,421
Total pork	2,285,198	150,691	2,211,866	126,775	2,338,657	78,487	2,239,516	42,482
Total mutton and lamb	607,310	1,430	735,966	809	735,468	853	776,299	521
Total unclassified	799,033	188,306	747,283	179,979	719,258	153,212	614,756	125,228
Total	6,561,162	629,565	6,175,098	543,298	5,970,890	432,716	5,564,272	288,652
PRINCIPAL IMPORTING COUNTRIES								
United Kingdom	127,797	3,827,365	110,198	3,894,405	115,615	4,217,133	82,804	4,025,817
Germany	42,080	838,653	78,441	570,656	64,497	463,257	34,210	518,461
France	62,427	299,085	67,603	252,343	57,764	299,523	51,568	181,619
Italy	18,680	233,627	14,482	206,354	17,147	168,851	13,131	166,485
Belgium	60,122	213,736	36,446	195,272	33,429	204,809	19,728	152,277
Cuba	750	180,592	2,231	134,310	356	88,354	--------	--------
Austria	8,495	124,462	9,999	105,188	11,584	92,567	3,913	41,531
Czechoslovakia	9,837	101,778	8,634	83,045	6,333	80,489	2,992	58,425
Japan	115	68,636	138	71,263	146	76,479	296	49,730
Mexico	7,200	65,814	1,135	95,349	93	58,351	--------	--------
Norway	3,107	36,970	2,779	28,261	2,503	21,561	5,318	16,488
Spain	6,116	31,148	5,342	27,323	5,367	32,240	5,343	39,643
Switzerland	3,383	30,242	3,019	30,469	2,829	32,615	2,738	31,685
Finland	4,565	19,972	3,091	13,964	6,823	8,401	6,473	8,157
Philippine Islands	0	19,812	0	15,405	43	17,529	1	15,760
British Malaya	2,336	15,306	1,985	13,628	1,335	11,906	--------	--------
British India	1,254	13,250	978	12,819	775	15,047	685	16,868
Peru	590	12,912	1,471	6,265	1,215	3,439	1,086	--------
Algeria	1,820	12,557	1,377	14,219	879	17,449	1,659	14,241
Egypt	144	7,603	108	4,689	89	3,592	77	3,015
Total	360,818	6,153,520	349,457	5,775,227	328,822	5,913,592	232,022	5,340,202
Total beef	126,843	2,696,113	122,053	2,232,772	110,201	2,197,546	60,274	1,849,817
Total pork	32,982	2,163,324	36,185	2,149,767	38,046	2,334,768	20,559	2,200,499
Total mutton and lamb	4,185	680,356	5,848	793,670	3,415	871,087	1,196	836,417
Total unclassified	196,808	613,727	185,371	599,018	177,160	510,191	149,993	453,469
Total	360,818	6,153,520	349,457	5,775,227	328,822	5,913,592	232,022	5,340,202

[1] Preliminary.
[2] Year ended June 30.

Bureau of Agricultural Economics; official sources.

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TABLE 372.—*Meat and meat food products prepared under Federal inspection, 1924–33*

Year ended June 30	Pork placed in cure	Sausage	Canned meats	Lard	Lard compounds and substitutes	Oleo products	Oleomargarine	All other products	Total
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1924	3, 502, 368	707, 323	183, 260	2, 110, 660	363, 320	259, 008	142, 881	2, 136, 020	9, 404, 840
1925	3, 176, 714	736, 877	214, 650	1, 733, 933	458, 518	287, 271	133, 836	2, 170, 278	8, 912, 077
1926	2, 850, 675	771, 741	214, 166	1, 598, 754	543, 913	275, 636	148, 331	2, 007, 854	8, 411, 070
1927	2, 920, 206	765, 074	248, 459	1, 691, 344	535, 175	280, 641	148, 384	1, 971, 827	8, 561, 110
1928	3, 036, 063	778, 311	255, 379	1, 846, 796	472, 839	237, 506	152, 085	2, 201, 933	8, 980, 912
1929	2, 992, 898	785, 463	285, 808	1, 817, 601	467, 077	228, 531	158, 881	2, 210, 438	8, 946, 697
1930	2, 981, 864	783, 629	303, 094	1, 807, 144	433, 495	223, 889	159, 413	2, 268, 407	8, 960, 935
1931	2, 851, 938	697, 798	283, 547	1, 662, 397	482, 482	212, 925	117, 819	2, 135, 789	8, 444, 695
1932	2, 760, 367	663, 644	240, 882	1, 715, 349	411, 935	197, 495	86, 717	2, 213, 493	8, 289, 882
1933	2, 782, 341	670, 497	251, 944	1, 787, 967	322, 146	174, 637	74, 545	2, 192, 960	8, 257, 037

Bureau of Animal Industry.
The above figures do not represent production, as a product may be inspected more than once in course of further manufacture.

TABLE 373.—*Hides, packer: Average price per pound at Chicago, 1924–33*

Calendar year	Steers					Cows			Bulls	
	Heavy native	Heavy Texas	Light Texas	Butt branded	Colorados	Heavy native	Light native	Branded	Native	Branded
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924	14. 67	13. 82	12. 80	13. 80	12. 79	12. 95	12. 29	10. 41	10. 14	8. 79
1925	15. 96	15. 08	14. 06	15. 16	14. 12	14. 82	14. 62	13. 30	11. 98	10. 29
1926	14. 08	13. 38	12. 67	13. 34	12. 82	12. 71	13. 11	12. 05	9. 98	8. 50
1927	19. 28	18. 21	17. 49	18. 23	17. 74	18. 08	18. 66	17. 26	14. 09	12. 88
1928	23. 85	22. 91	22. 26	22. 95	22. 26	22. 96	22. 63	21. 79	17. 64	16. 62
1929	16. 98	16. 08	15. 16	16. 11	15. 39	15. 86	15. 75	14. 86	11. 42	10. 17
1930	13. 87	13. 76	12. 55	13. 73	13. 18	11. 78	11. 71	11. 19	8. 30	7. 30
1931	9. 06	8. 96	8. 34	8. 96	8. 48	8. 04	8. 43	7. 76	5. 53	4. 78
1932	6. 04	5. 92	5. 14	5. 91	5. 47	5. 17	5. 63	5. 20	3. 86	3. 19
1933	9. 67	9. 66	9. 09	9. 66	9. 18	8. 89	9. 28	8. 78	6. 93	6. 18

Bureau of Agricultural Economics. Compiled from annual reports of the Chicago Board of Trade.

TABLE 374.—*Hides, country: Average price per pound at Chicago, 1924–33*

Calendar year	Extremes	Heavy steers	Heavy cows	No. 1 buffs	No. 2 buffs	Bulls	Country packer brands	Country brands	No. 1 calfskins	No. 1 kipskins
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924	11. 86	11. 31	9. 24	9. 63	8. 63	7. 86	9. 81	8. 23	20. 39	16. 62
1925	14. 41	12. 94	11. 64	12. 26	11. 25	9. 46	12. 52	10. 54	21. 88	18. 12
1926	13. 46	11. 63	9. 54	10. 70	9. 70	8. 03	10. 52	9. 00	18. 02	16. 12
1927	18. 60	16. 02	14. 85	16. 26	15. 26	11. 49	15. 54	13. 89	20. 47	19. 96
1928	22. 04	18. 53	18. 05	19. 71	18. 71	14. 88	19. 18	17. 38	27. 84	25. 23
1929	14. 98	12. 09	11. 55	12. 82	11. 82	8. 92	11. 88	10. 80	20. 72	18. 72
1930	11. 18	8. 50	8. 40	9. 14	8. 14	5. 90	9. 49	7. 73	17. 43	15. 92
1931	7. 77	6. 02	5. 61	6. 32	5. 32	3. 99	6. 70	5. 05	11. 81	10. 42
1932	4. 88	3. 78	3. 40	4. 15	3. 15	2. 39	3. 32	2. 85	6. 38	6. 28
1933	8. 13	6. 32	5. 08	7. 23	6. 23	4. 64	5. 50	5. 12	12. 58	11. 72

Bureau of Agricultural Economics. Compiled from annual reports of the Chicago Board of Trade.

TABLE 375.—*Meats and lard: Estimated total production and per capita consumption in United States, 1900–1933*

Calendar year	Production					Per capita consumption					
	Beef	Veal	Lamb and mutton	Pork (excl. lard)	Lard	Beef	Veal	Lamb and mutton	Pork (excl. lard)	Total meats	Lard
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*
1900	5,694	265	517	5,912	1,617	67.8	3.5	6.8	64.7	142.8	13.2
1901	5,919	305	538	5,895	1,614	69.0	3.9	6.9	63.0	142.8	12.9
1902	5,922	346	561	5,334	1,439	68.5	4.4	7.0	57.8	137.7	11.7
1903	6,689	384	582	5,465	1,496	76.0	4.7	7.2	59.3	147.2	11.8
1904	6,548	425	564	5,867	1,596	73.6	5.1	6.8	62.8	148.3	12.4
1905	6,680	455	545	5,748	1,551	73.0	5.4	6.5	58.8	143.7	10.0
1906	6,711	464	555	5,976	1,644	72.6	5.4	6.5	59.7	144.2	11.2
1907	7,192	589	560	6,333	1,777	77.5	6.7	6.4	64.4	155.1	13.5
1908	6,642	573	559	6,617	1,790	71.5	6.4	6.3	66.1	150.3	13.5
1909	7,041	628	603	6,024	1,504	75.4	6.9	6.6	60.1	149.2	11.5
1910	6,703	632	599	5,649	1,434	71.1	6.8	6.4	57.1	141.6	11.4
1911	6,466	597	732	6,596	1,673	67.7	6.4	7.8	64.5	146.5	11.3
1912	5,888	598	779	6,407	1,626	61.1	6.3	8.1	61.8	137.4	11.2
1913	5,881	491	731	6,622	1,681	60.6	5.1	7.5	63.0	136.3	11.4
1914	5,606	443	712	6,530	1,657	58.5	4.6	7.4	62.3	133.0	12.2
1915	5,779	427	622	6,971	1,775	54.5	4.3	6.3	59.5	124.8	12.9
1916	6,075	535	608	7,386	1,849	56.0	5.3	6.1	60.1	127.7	13.6
1917	6,641	661	473	6,139	1,557	59.5	6.5	4.6	49.3	120.1	11.7
1918	7,279	764	493	7,854	1,983	63.0	7.4	4.7	54.8	130.1	13.3
1919	6,758	803	603	7,832	2,039	61.6	7.7	5.8	54.8	130.0	12.3
1920	6,713	797	532	7,455	2,056	63.1	7.6	5.5	60.5	136.8	13.3
1921	6,163	747	626	7,645	2,114	56.9	7.0	5.9	63.5	133.3	11.3
1922	6,706	792	535	8,260	2,357	60.4	7.3	5.0	66.1	138.8	14.2
1923	6,873	862	571	9,595	2,783	61.4	7.7	5.2	74.7	149.0	15.3
1924	7,065	925	589	9,279	2,746	61.6	8.2	5.2	74.7	149.7	15.4
1925	7,146	1,001	599	8,255	2,223	62.2	8.7	5.2	67.6	143.7	13.2
1926	7,458	960	643	8,181	2,324	63.6	8.2	5.5	65.7	143.0	13.5
1927	6,826	867	645	8,533	2,356	58.4	7.4	5.4	68.5	139.7	13.8
1928	6,082	814	671	9,387	2,594	51.7	6.8	5.6	73.9	138.0	14.7
1929	6,065	816	699	9,223	2,598	51.4	6.8	5.8	72.8	136.8	14.3
1930	6,076	833	820	8,809	2,344	50.1	6.8	6.6	69.3	132.8	13.8
1931	6,132	860	878	8,907	2,385	49.6	6.9	7.1	69.6	133.2	14.4
1932	5,896	849	895	9,180	2,463	47.4	6.8	7.0	72.2	133.4	15.2
1933	------	------	------	------	------	------	------	------	------	------	------

Bureau of Agricultural Economics. Subject to revision.

TABLE 376.—*Horses and mules: Number and value on farms, Jan. 1, and yearly weighted average price received by producers, United States, 1910–34*

Year	Horses				Mules			
	Number [1]	Farm value: Per head [1]	Farm value: Total	Weighted yearly price per head [2]	Number [1]	Farm value: Per head [1]	Farm value: Total	Weighted yearly price per head [2]
	Thousands	*Dollars*	*1,000 dollars*	*Dollars*	*Thousands*	*Dollars*	*1,000 dollars*	*Dollars*
1910	19,833	108.03	2,142,524	146.00	4,210	120.20	506,049	------
1911	20,277	111.46	2,259,981	141.00	4,323	125.92	544,359	------
1912	20,509	105.94	2,172,694	140.00	4,362	120.51	525,657	------
1913	20,567	110.77	2,278,222	142.00	4,386	124.31	545,245	------
1914	20,962	109.32	2,291,638	135.00	4,449	123.85	551,017	------
1915	21,195	103.33	2,190,102	130.00	4,479	112.36	503,271	------
1916	21,159	101.60	2,149,786	130.00	4,593	113.83	522.834	------
1917	21,210	102.89	2,182,307	132.00	4,723	118.15	558,006	------
1918	21,555	104.24	2,246,970	130.00	4,873	128.81	627,679	------
1919	21,482	98.45	2,114,897	121.00	4,954	135.83	672,922	------
1920	20,092	96.48	1,938,447	119.00	5,656	148.25	838,530	------
1921	19,366	84.54	1,637,181	92.00	5,772	117.37	677,475	------
1922	18,760	71.05	1,332,822	84.00	5,827	88.99	518,558	------
1923	18,123	70.51	1,277,873	82.00	5,895	86.86	512,067	------
1924	17,365	65.42	1,135,967	76.00	5,908	85.89	507,435	------
1925	16,640	64.28	1,069,654	78.00	5,918	82.91	490,668	------
1926	16,067	65.32	1,049,442	79.00	5,903	81.51	481,153	94.00
1927	15,368	63.74	979,509	78.00	5,801	74.50	432,181	90.00
1928	14,768	66.68	984,763	82.00	5,647	79.79	450,585	96.00
1929	14,203	69.63	988,953	81.00	5,496	82.39	452,825	96.00
1930	13,684	69.86	955,964	75.00	5,366	83.76	449,480	91.00
1931	13,169	60.42	795,725	65.00	5,226	69.19	361,562	74.00
1932	12,621	53.20	671,457	60.00	5,120	60.56	310,058	66.00
1933	12,197	53.76	655,653	68.00	5,034	60.17	302,918	75.00
1934 [3]	11,942	66.42	793,184	------	4,931	81.56	402,171	------

[1] As reported for Jan. 1.
[2] As reported by dealers; monthly prices weighted by receipts at public stockyards. [3] Preliminary.
Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 377.—*Horses and mules:* [1] *Number on farms and farm value per head, by States, Jan. 1, 1932–34*

State and division	Horses						Mules					
	Number			Farm value per head [2]			Number			Farm value per head [2]		
	1932	1933	1934 [3]	1932	1933	1934	1932	1933	1934 [3]	1932	1933	1934
	Thousands	*Thousands*	*Thousands*	*Dol.*	*Dol.*	*Dol.*	*Thousands*	*Thousands*	*Thousands*	*Dol.*	*Dol.*	*Dol.*
Maine	55	51	47	114.00	104.00	116.00						
New Hampshire	18	16	15	95.00	90.00	95.00						
Vermont	48	47	46	102.00	90.00	107.00						
Massachusetts	23	22	21	108.00	101.00	106.00						
Rhode Island	4	4	4	100.00	90.00	95.00						
Connecticut	20	19	18	110.00	92.00	102.00						
New York	303	294	285	107.00	97.00	109.00	6	6	6	102.00	91.00	98.00
New Jersey	35	33	32	102.00	96.00	115.00	3	2	2	119.00	90.00	108.00
Pennsylvania	297	285	279	104.00	95.00	109.00	50	51	51	111.00	98.00	112.00
North Atlantic	803	771	747	105.38	95.93	108.87	59	59	59	110.61	97.29	110.63
Ohio	469	460	451	87.00	87.00	100.00	32	33	32	89.00	88.00	95.00
Indiana	425	412	404	73.00	72.00	82.00	83	79	79	77.00	77.00	88.00
Illinois	773	742	727	60.00	60.00	70.00	129	126	122	69.00	67.00	80.00
Michigan	373	366	362	91.00	91.00	105.00	6	6	6	89.00	91.00	107.00
Wisconsin	522	512	507	77.00	77.00	91.00	7	7	7	74.00	74.00	89.00
East North Central	2,562	2,492	2,451	75.24	75.01	87.06	257	251	246	74.78	73.87	85.29
Minnesota	775	760	745	56.00	57.00	69.00	15	15	15	63.00	60.00	73.00
Iowa	996	946	927	56.00	59.00	73.00	81	79	76	64.00	64.00	79.00
Missouri	574	551	551	40.00	45.00	59.00	291	288	274	55.00	60.00	76.00
North Dakota	556	532	521	41.00	46.00	55.00	8	8	8	45.00	45.00	57.00
South Dakota	581	552	524	36.00	39.00	49.00	18	17	15	46.00	47.00	60.00
Nebraska	697	676	662	44.00	46.00	58.00	91	88	86	56.00	56.00	72.00
Kansas	664	651	644	37.00	41.00	53.00	150	146	131	52.00	52.00	69.00
West North Central	4,843	4,668	4,574	45.65	48.65	60.85	654	641	605	55.58	57.65	73.91
North Central	7,405	7,160	7,025	55.89	57.83	69.99	911	892	851	60.99	62.21	77.20
Delaware	16	16	15	64.00	64.00	78.00	10	9	9	93.00	86.00	90.00
Maryland	91	89	84	68.00	68.00	81.00	28	28	28	95.00	89.00	103.00
Virginia	187	178	167	66.00	66.00	80.00	93	90	88	84.00	83.00	98.00
West Virginia	106	103	101	70.00	74.00	85.00	12	12	12	74.00	73.00	81.00
North Carolina	77	75	73	65.00	67.00	85.00	270	265	268	89.00	89.00	116.00
South Carolina	25	23	22	54.00	63.00	82.00	167	165	165	74.00	77.00	117.00
Georgia	35	33	32	52.00	50.00	81.00	333	326	333	70.00	69.00	112.00
Florida	19	18	18	68.00	60.00	69.00	42	42	42	97.00	74.00	99.00
South Atlantic	556	535	512	65.74	66.62	81.82	955	937	945	79.62	78.36	111.18
Kentucky	222	207	203	47.00	47.00	59.00	254	257	254	59.00	59.00	72.00
Tennessee	157	146	143	49.00	49.00	63.00	318	315	309	67.00	64.00	83.00
Alabama	58	55	53	46.00	45.00	73.00	319	322	325	62.00	65.00	91.00
Mississippi	92	86	85	43.00	39.00	52.00	347	347	344	63.00	58.00	78.00
Arkansas	120	116	116	31.00	35.00	47.00	332	319	306	46.00	51.00	66.00
Louisiana	106	103	99	38.00	32.00	40.00	189	180	176	63.00	56.00	70.00
Oklahoma	453	439	431	30.00	33.00	53.00	287	270	251	43.00	45.00	70.00
Texas	734	727	727	30.00	31.00	46.00	990	980	960	47.00	47.00	68.00
South Central	1,942	1,879	1,857	35.13	35.65	51.00	3,036	2,990	2,925	53.99	53.89	73.78
Montana	400	388	380	23.00	24.00	34.00	8	8	8	29.00	29.00	40.00
Idaho	190	186	182	36.00	35.00	47.00	7	7	7	45.00	36.00	54.00
Wyoming	162	157	149	26.00	26.00	36.00	4	4	4	45.00	41.00	54.00
Colorado	324	318	312	34.00	31.00	41.00	28	27	26	42.00	39.00	51.00
New Mexico	130	121	114	23.00	25.00	39.00	22	21	19	39.00	37.00	54.00
Arizona	74	72	73	41.00	32.00	41.00	12	12	12	58.00	39.00	53.00
Utah	87	83	81	38.00	46.00	59.00	3	3	3	35.00	40.00	50.00
Nevada	35	34	34	45.00	35.00	47.00	3	3	3	44.00	41.00	53.00
Washington	161	155	150	49.00	48.00	63.00	20	20	20	54.00	54.00	73.00
Oregon	162	154	148	44.00	47.00	55.00	14	14	13	49.00	50.00	58.00
California	190	184	178	59.00	54.00	70.00	38	37	36	67.00	58.00	74.00
Western	1,915	1,852	1,801	35.62	35.11	46.39	159	156	151	50.36	45.71	60.17
United States	12,621	12,197	11,942	53.20	53.76	66.42	5,120	5,034	4,931	60.56	60.17	81.56

[1] Including colts.
[2] Sum of total value of subgroups (classified by age), divided by total number and rounded to nearest dollar for States. Division and United States averages not rounded.
[3] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

DAIRY AND POULTRY STATISTICS

TABLE 378.—*Milk cows: Numbers and farm value per head in the United States, 1880–1934*

Year	Milk cows on farms		Year	Milk cows on farms		Year	Milk cows on farms	
	Number [1]	Farm value per head Jan. 1 [2]		Number [1]	Farm value per head Jan. 1 [2]		Number [1]	Farm value per head Jan. 1 [2]
	Thousands	*Dollars*		*Thousands*	*Dollars*		*Thousands*	*Dollars*
1880 [3]	*12,443*	----------	1899	15,990	29.66	1918	21,021	67.37
1880	12,027	23.27	*1900* [3]	*17,136*	----------	1919	21,219	74.68
1881	12,369	23.95	1900	15,253	30.18	*1920* [3]	*19,675*	----------
1882	12,612	25.89	1901	15,521	28.65	1920	21,455	81.51
1883	13,126	30.21	1902	15,787	27.91	1921	21,440	61.20
1884	13,501	31.37	1903	16,073	28.85	1922	21,822	48.69
1885	13,905	29.70	1904	16,459	27.90	1923	22,099	48.68
1886	14,235	27.40	1905	16,842	26.21	1924	22,288	49.94
1887	14,522	26.08	1906	17,277	28.12	*1925* [3]	*20,900*	----------
1888	14,856	24.65	1907	17,650	29.60	1925	22,505	48.38
1889	15,299	23.94	1908	17,937	29.29	1926	22,311	54.73
1890 [3]	*16,512*	----------	1909	18,154	30.90	1927	22,159	59.24
1890	15,953	22.14	*1910* [3]	*20,625*	----------	1928	22,129	73.47
1891	16,020	21.62	1910	18,206	33.70	1929	22,330	83.99
1892	16,416	21.40	1911	18,244	38.17	*1930* [3]	*21,124*	----------
1893	16,424	21.75	1912	18,312	37.62	1930	22,910	82.80
1894	16,487	21.77	1913	18,526	42.99	1931	23,576	57.10
1895	16,505	21.97	1914	18,930	51.51	1932	24,475	39.57
1896	16,138	22.55	1915	19,526	52.84	1933	25,277	29.25
1897	15,942	23.16	1916	20,064	51.49	1934 [4]	26,062	27.09
1898	15,841	27.45	1917	20,541	56.95			

[1] Prior to 1900, estimates for each 10-year period represent an index of annual changes applied to the census as a base on first report after census data were available. Figures for 1900 to 1919 are tentatively revised estimates of the Bureau of Agricultural Economics for numbers on Jan. 1. Figures from 1920 to 1931 are revised estimates made in 1932, based upon stndy of 1930 census report. Figures for 1900–1934 relate to "cows and heifers 2 years old and over Jan. 1, kept for milk."

[2] Values for 1880–99 relate to "milk cows." Data for 1900–1925 are an old series of values of "milk cows" adjusted to relate to "milk cows and heifers, 2 years old and over" on basis of relationship between the 2 series from 1926 to 1928. Conversion factor was 0.955 (base is old series). Data for 1926–34 are values relating to "milk cows and heifers 2 years old and over."

[3] Italic figures are from the census. Figures for census years 1880 and 1890 represent "milk cows"; 1900, "cows kept for milk 2 years and over"; 1910 "cows and heifers kept for milk, born before Jan. 1, 1909" (15½ months and over); 1920 "dairy cattle 2 years old and over kept mainly for milk production"; 1925 and 1930, "number of cows milked in 1924 and 1929." Census dates were June 1 from 1880 to 1900; Apr. 15, 1910; Jan. 1, 1920 and 1925; Apr. 1, 1930.

[4] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 379.—*Milk cows, heifers, and heifer calves: Number on farms, by States, Jan. 1, 1932–34*

State and division	Cows and heifers, 2 years old and over, kept for milk: Number 1932	Number 1933	Number 1934[1]	Value per head 1932	Value per head 1933	Value per head 1934[1]	Heifers 1 to 2 years old being kept for milk cows 1932	1933	1934[1]	Heifer calves under 1 year being kept for milk cows 1932	1933	1934[1]
	Thousands	*Thousands*	*Thousands*	*Dollars*	*Dollars*	*Dollars*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
Maine	146	148	150	50.00	36.00	33.00	40	41	40	42	41	41
New Hampshire	81	81	82	61.00	46.00	41.00	18	19	18	20	19	18
Vermont	294	303	297	52.00	40.00	38.00	58	58	55	60	62	59
Massachusetts	134	129	130	88.00	64.00	64.00	20	19	19	22	21	21
Rhode Island	21	21	22	90.00	68.00	68.00	3	3	3	4	4	4
Connecticut	114	114	114	83.00	60.00	62.00	18	18	18	19	19	19
New York	1,411	1,438	1,431	61.00	49.00	51.00	213	222	234	225	240	244
New Jersey	120	122	126	89.00	63.00	76.00	16	17	19	19	22	21
Pennsylvania	886	904	922	60.00	42.00	44.00	155	153	155	158	161	168
North Atlantic	3,207	3,260	3,274	62.55	47.18	48.75	541	550	561	569	589	595
Ohio	938	966	995	44.00	32.00	29.00	182	178	181	180	187	195
Indiana	751	774	810	39.00	29.00	25.00	140	136	135	144	150	150
Illinois	1,089	1,122	1,165	42.00	32.00	29.00	215	219	209	225	235	243
Michigan	850	867	902	45.00	33.00	30.00	160	157	160	163	165	169
Wisconsin	2,150	2,175	2,212	43.00	30.00	28.00	409	395	387	412	400	392
East North Central	5,778	5,904	6,084	42.75	31.02	28.25	1,106	1,085	1,072	1,124	1,137	1,149
Minnesota	1,708	1,776	1,850	35.00	25.00	23.00	335	339	343	355	367	378
Iowa	1,471	1,503	1,593	38.00	29.00	27.00	285	288	288	290	293	312
Missouri	1,030	1,051	1,072	30.00	23.00	19.00	198	190	188	200	210	225
North Dakota	624	667	701	33.00	25.00	20.00	128	139	144	139	150	165
South Dakota	613	650	675	31.00	24.00	20.00	138	150	150	154	175	175
Nebraska	700	735	765	36.00	27.00	26.00	126	131	135	135	138	142
Kansas	843	868	900	33.00	25.00	22.00	147	147	142	162	165	177
West North Central	6,989	7,250	7,556	34.22	25.65	22.91	1,357	1,384	1,390	1,435	1,498	1,574
North Central	12,767	13,154	13,640	38.08	28.06	25.30	2,463	2,469	2,462	2,559	2,635	2,723
Delaware	35	36	36	54.00	36.00	41.00	5	5	4	4	4	4
Maryland	186	188	190	49.00	35.00	36.00	28	26	27	26	28	27
Virginia	394	402	406	35.00	27.00	26.00	54	49	47	53	55	50
West Virginia	218	227	234	37.00	29.00	27.00	29	33	31	35	38	38
North Carolina	309	328	337	37.00	28.00	27.00	66	66	68	70	75	72
South Carolina	145	154	156	33.00	27.00	28.00	30	29	28	30	32	31
Georgia	342	356	375	25.00	19.00	20.00	86	87	90	88	92	94
Florida	90	93	98	38.00	29.00	30.00	16	18	17	15	18	17
South Atlantic	1,719	1,784	1,832	35.51	26.97	26.80	314	313	312	321	342	333
Kentucky	528	544	554	30.00	23.00	21.00	70	70	73	83	87	88
Tennessee	507	527	543	28.00	21.00	19.00	93	86	90	95	100	100
Alabama	390	413	430	23.00	18.00	18.00	104	99	101	114	131	134
Mississippi	496	526	552	21.00	15.00	15.00	84	76	76	87	95	96
Arkansas	421	454	477	23.00	18.00	15.00	100	95	96	108	110	110
Louisiana	260	270	286	30.00	21.00	23.00	54	54	56	58	60	64
Oklahoma	716	766	784	27.00	20.00	16.00	145	154	154	175	186	199
Texas	1,312	1,391	1,461	29.00	20.00	18.00	223	223	245	259	259	272
South Central	4,630	4,891	5,087	26.84	19.60	17.80	873	857	891	979	1,028	1,063
Montana	195	201	211	36.00	32.00	26.00	40	46	50	46	47	51
Idaho	194	200	208	39.00	31.00	22.00	53	57	58	54	59	60
Wyoming	72	73	75	39.00	31.00	27.00	15	16	17	17	19	20
Colorado	266	274	285	36.00	25.00	22.00	59	65	70	70	75	80
New Mexico	70	71	72	37.00	25.00	25.00	15	16	17	17	18	20
Arizona	42	45	46	57.00	39.00	39.00	11	12	12	12	13	13
Utah	111	111	113	36.00	32.00	25.00	28	27	27	29	28	28
Nevada	21	21	22	51.00	38.00	36.00	6	6	6	7	7	7
Washington	300	312	318	53.00	36.00	27.00	65	70	70	70	74	72
Oregon	250	255	260	45.00	31.00	23.00	57	58	58	58	60	60
California	631	625	619	51.00	38.00	35.00	145	142	138	145	143	140
Western	2,152	2,188	2,229	44.77	33.14	27.72	494	515	523	525	543	551
United States	24,475	25,277	26,062	39.57	29.25	27.09	4,685	4,704	4,749	4,953	5,137	5,265

[1] Preliminary.

Bureau of Agricultural Economics; estimates of Crop Reporting Board.
Revisions by States, 1920–27, except for heifer calves, are published in February 1932, Crops and Markets.

TABLE 380.—*Heifers and heifer calves: Number on farms, United States, Jan. 1, 1920–34*

Year	Heifers 1 to 2 years old being kept for milk cows	Heifer calves under 1 year being kept for milk cows	Year	Heifers 1 to 2 years old being kept for milk cows	Heifer calves under 1 year being kept for milk cows	Year	Heifers 1 to 2 years old being kept for milk cows	Heifer calves under 1 year being kept for milk cows
	Thousands	*Thousands*		*Thousands*	*Thousands*		*Thousands*	*Thousands*
1920	4,420		1925	4,171	4,274	1930	4,700	5,005
1921	4,164		1926	4,045	4,276	1931	4,775	4,887
1922	3,972		1927	4,048	4,383	1932	4,685	4,953
1923	4,155		1928	4,158	4,606	1933	4,704	5,137
1924	4,143	4,426	1929	4,404	4,911	1934 [1]	4,749	5,265

[1] Preliminary.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 381.—*Purebred dairy cattle: Number registered each year, by breeds, United States, 1924–33*

Year	Ayrshire			Guernsey			Holstein-Friesian			Jersey		
	Bulls	Cows	Total	Bulls	Cows	Total	Bulls	Cows	Total	Bulls	Cows	Total
	Number	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*
1924	1,431	5,508	6,939	10,301	18,166	28,467	28,209	83,320	111,529	12,331	39,832	52,163
1925	1,561	5,972	7,533	11,299	20,742	32,041	26,935	82,659	109,594	12,131	41,725	53,856
1926	1,720	6,142	7,862	12,392	22,298	34,690	28,117	82,971	111,088	12,837	42,915	55,752
1927	1,847	6,554	8,401	12,777	22,694	35,471	28,817	81,146	109,963	15,666	48,411	64,077
1928	2,274	7,837	10,111	14,363	24,664	39,027	33,512	88,214	121,726	19,393	54,516	73,909
1929	2,586	8,833	11,419	14,661	26,288	40,949	35,438	89,927	125,365	19,230	52,431	71,661
1930	2,050	8,159	10,209	15,810	28,662	44,472	29,242	75,901	105,143	14,350	43,767	58,117
1931	1,552	7,324	8,876	12,880	27,964	40,844	21,811	70,535	92,346	10,262	38,211	48,473
1932	1,317	6,306	7,623	[1] 9,962	25,817	35,779	13,834	54,481	68,315	7,678	33,551	41,229
1933	1,430	7,542	8,972	7,185	22,809	29,994	15,521	83,002	98,523	6,217	29,239	35,456

[1] Year ended Apr. 1.

Bureau of Dairy Industry; obtained from registry associations.
See 1930 Yearbook, table 441, p. 901, for data for earlier years.

TABLE 382.—*Cattle: Tuberculin testing under accredited-herd and area plans, 1924–33*

Year ended June 30	Cattle tested					Modified accredited counties [1]	Herds accredited [2]	Herds passed one test [2]	Herds under supervision [2]
	Accredited-herd plan	Area plan	Total	Reactors found					
	Number	*Number*	*Number*	*Number*	*Percent*	*Number*	*Number*	*Number*	*Number*
1924	1,865,863	3,446,501	5,312,364	171,559	3.2	38	19,747	216,737	305,809
1925	2,008,526	4,991,502	7,000,028	214,491	3.1	51	24,110	392,740	414,620
1926	1,989,048	6,661,732	8,650,780	323,084	3.7	109	24,009	382,674	435,840
1927	2,522,791	7,177,385	9,700,176	285,361	2.9	149	34,084	229,086	261,148
1928	2,589,844	8,691,646	11,281,490	262,113	2.3	180	38,880	427,595	473,218
1929	2,853,633	8,830,087	11,683,720	206,764	1.8	213	1,639	249,420	281,323
1930	2,953,350	9,892,521	12,845,871	216,932	1.7	236	11,863	227,921	347,448
1931	3,086,403	10,695,870	13,782,273	203,778	1.5	247	[3] 26,259	350,735	356,916
1932	3,131,426	10,312,131	13,443,557	254,785	1.9	220	18,049	262,988	303,832
1933	2,980,526	10,093,368	13,073,894	255,096	2.1	183	19,701	337,730	346,394

[1] Modified accredited counties are those in which tuberculosis does not exist among more than one half of 1 percent of the cattle, as determined by official tuberculin testing, and from which all reactors to the test have been removed.
[2] The figures in these columns represent net increases at the close of each year.
[3] Represents decrease from figures for previous year.

Bureau of Animal Industry.
Current data on tuberculosis-eradication work, including progress by States and counties, may be obtained from Bureau of Animal Industry.

TABLE 383.—*Milk cows and production of milk: Estimated number of producing cows, yield per cow, and production of milk by States, 1931–33*

State and division	Milk cows on farms [1]			Milk production per cow [2]			Total production of milk on farms [2]		
	1931	1932	1933 [3]	1931	1932	1933 [3]	1931	1932	1933 [3]
	Thousands	*Thousands*	*Thousands*	*Lb.*	*Lb.*	*Lb.*	*Million lb.*	*Million lb.*	*Million lb.*
Maine	136	140	142	4,770	4,620	4,430	649	647	629
New Hampshire	76	76	77	4,920	4,900	4,750	374	372	366
Vermont	272	275	281	4,910	4,800	4,660	1,336	1,320	1,309
Massachusetts	126	126	123	5,870	5,710	5,730	740	719	705
Rhode Island	21	21	21	6,300	6,300	6,300	132	132	132
Connecticut	106	110	109	5,630	5,660	5,600	597	623	610
New York	1,334	1,370	1,378	5,521	5,357	5,295	7,367	7,340	7,297
New Jersey	115	116	119	6,130	5,900	5,900	705	684	702
Pennsylvania	852	877	897	5,210	4,980	4,930	4,439	4,367	4,422
North Atlantic	3,038	3,111	3,147	5,378	5,209	5,139	16,339	16,204	16,172
Ohio	883	912	942	4,670	4,470	4,340	4,124	4,077	4,088
Indiana	705	731	762	4,290	4,160	4,000	3,024	3,041	3,048
Illinois	1,027	1,054	1,100	4,550	4,510	4,470	4,673	4,754	4,917
Michigan	801	822	850	5,200	5,100	4,950	4,165	4,192	4,208
Wisconsin	2,037	2,074	2,106	5,550	5,300	5,140	11,305	10,992	10,825
East North Central	5,453	5,593	5,760	5,005	4,837	4,702	27,291	27,056	27,086
Minnesota	1,577	1,627	1,715	4,900	4,800	4,720	7,727	7,810	8,095
Iowa	1,358	1,406	1,455	4,380	4,300	4,300	5,948	6,046	6,256
Missouri	986	1,012	1,041	3,680	3,540	3,380	3,628	3,582	3,519
North Dakota	560	602	640	4,050	3,750	3,560	2,268	2,258	2,278
South Dakota	545	560	600	4,000	3,580	3,530	2,180	2,005	2,118
Nebraska	653	672	715	4,300	4,100	4,200	2,808	2,755	3,003
Kansas	788	817	845	4,080	4,000	3,950	3,215	3,268	3,338
West North Central	6,467	6,696	7,011	4,295	4,140	4,080	27,774	27,724	28,607
Delaware	32	33	34	4,050	3,950	3,900	130	130	133
Maryland	177	180	182	4,350	4,250	4,200	770	765	764
Virginia	370	381	386	3,520	3,360	3,160	1,302	1,280	1,220
West Virginia	206	210	220	3,690	3,560	3,310	760	748	728
North Carolina	290	304	317	3,750	3,660	3,450	1,088	1,113	1,094
South Carolina	135	141	147	3,550	3,450	3,380	479	486	497
Georgia	316	328	343	3,170	3,080	2,960	1,002	1,010	1,015
Florida	83	86	89	2,830	2,770	2,770	235	238	247
South Atlantic	1,609	1,663	1,718	3,584	3,470	3,317	5,766	5,770	5,698
Kentucky	502	522	536	3,540	3,440	3,370	1,777	1,796	1,806
Tennessee	474	496	516	3,390	3,240	3,080	1,607	1,607	1,589
Alabama	363	384	405	3,030	3,000	2,760	1,100	1,152	1,118
Mississippi	450	484	513	2,860	2,740	2,500	1,287	1,326	1,282
Arkansas	373	406	433	3,130	3,000	2,750	1,167	1,218	1,191
Louisiana	234	244	254	2,250	2,230	2,070	526	544	526
Oklahoma	669	710	749	3,500	3,450	3,250	2,342	2,450	2,434
Texas	1,187	1,261	1,334	3,250	3,180	2,930	3,858	4,010	3,909
South Central	4,252	4,507	4,740	3,214	3,129	2,923	13,664	14,103	13,855
Montana	182	183	192	4,050	3,990	3,850	737	730	739
Idaho	181	186	193	5,580	5,440	5,280	1,010	1,012	1,019
Wyoming	68	69	70	4,040	3,790	3,840	275	262	269
Colorado	247	251	262	4,300	4,000	4,000	1,062	1,004	1,048
New Mexico	66	67	68	3,400	3,300	3,150	224	221	214
Arizona	39	42	44	5,000	4,640	4,740	195	195	209
Utah	107	107	108	5,400	5,300	5,280	578	567	570
Nevada	21	21	21	5,130	4,880	4,730	108	102	99
Washington	283	295	304	5,900	5,680	5,350	1,670	1,676	1,626
Oregon	240	247	252	5,380	5,200	4,850	1,291	1,284	1,222
California	604	599	599	6,600	6,600	6,470	3,986	3,953	3,876
Western	2,038	2,067	2,113	5,464	5,325	5,154	11,136	11,006	10,891
United States	22,857	23,637	24,489	4,461	4,309	4,178	101,970	101,863	102,309

[1] Average number of milk cows on farms during year, excluding heifers not fresh.
[2] Excluding milk spilled or wasted on farms and milk sucked by calves.
[3] Preliminary.

Bureau of Agricultural Economics; estimates of Division of Crop and Livestock Estimates.

TABLE 384.—*Milk and butterfat produced and milk used for each purpose on farms, 1933*

State and division	Milk cows on farms [1]	Estimated production per milk cow during year [2]		Percentage of butterfat in milk produced	Total production on farms [2]		Disposition of milk					
		Milk	Butterfat		Milk	Butterfat	Used as whole milk or cream on farms where produced	Used for making butter on farms	Whole milk fed to calves	Milk skimmed or separated for sale of butterfat	Retailed by producers [3]	Milk sold at wholesale [4]
	Thousands	*Lb.*	*Lb.*	*Percent*	*Million lb.*	*Million lb.*	*Million lb.*	*Million lb.*	*Million lb.*	*Million lb.*	*Million lb.*	*Million lb.*
Maine	142	4,430	182	4.1	629	26	73	156	14	84	105	197
New Hampshire	77	4,750	185	3.9	366	14	29	35	9	10	43	240
Vermont	281	4,660	189	4.05	1,309	53	65	39	29	208	58	910
Massachusetts	123	5,730	218	3.8	705	27	54	17	14	10	134	476
Rhode Island	21	6,300	243	3.85	132	5	7	1	3	------	12	109
Connecticut	109	5,600	213	3.8	610	23	43	11	16	4	115	421
New York	1,378	5,295	192	3.63	[5] 7,297	265	391	332	226	175	565	5,608
New Jersey	119	5,900	217	3.68	702	26	47	11	13	------	196	435
Pennsylvania	897	4,930	187	3.8	4,422	168	407	367	106	182	725	2,635
North Atlantic	3,147	5,139	192.9	3.75	16,172	607	1,116	969	430	673	1,953	11,031
Ohio	942	4,340	178	4.1	4,088	168	567	314	123	1,178	387	1,519
Indiana	762	4,000	166	4.15	3,048	126	420	179	79	1,158	215	997
Illinois	1,100	4,470	170	3.8	4,917	187	576	378	133	1,550	415	1,865
Michigan	850	4,950	188	3.8	4,208	160	405	327	164	1,435	303	1,574
Wisconsin	2,106	5,140	190	3.7	10,825	400	552	87	325	2,790	216	6,855
East North Central	5,760	4,702	180.7	3.84	27,086	1,041	2,520	1,285	824	8,111	1,536	12,810
Minnesota	1,715	4,720	177	3.75	8,095	304	579	224	235	6,111	194	752
Iowa	1,455	4,300	163	3.8	6,256	237	621	338	175	4,497	168	457
Missouri	1,041	3,380	142	4.2	3,519	148	563	478	91	1,769	200	418
North Dakota	640	3,560	134	3.75	2,278	86	244	334	80	1,518	63	39
South Dakota	600	3,530	134	3.8	2,118	80	236	212	74	1,486	66	44
Nebraska	715	4,200	160	3.8	3,003	114	364	344	111	1,852	126	206
Kansas	845	3,950	154	3.9	3,338	130	422	314	127	1,948	190	337
West North Central	7,011	4,080	156.8	3.84	28,607	1,099	3,029	2,244	893	19,181	1,007	2,253
Delaware	34	3,900	152	3.9	133	5	16	9	3	2	20	83
Maryland	182	4,200	166	3.95	764	30	97	73	16	12	100	466
Virginia	386	3,160	130	4.1	1,220	50	281	445	37	125	108	224
West Virginia	220	3,310	139	4.2	728	31	186	256	25	87	108	66
North Carolina	317	3,450	148	4.3	1,094	47	342	501	15	55	90	91
South Carolina	147	3,380	149	4.4	497	22	153	233	6	22	54	29
Georgia	343	2,960	130	4.4	1,015	45	263	510	10	70	58	104
Florida	89	2,770	119	4.3	247	11	36	43	2	9	66	91
South Atlantic	1,718	3,317	140.3	4.23	5,698	241	1,374	2,070	114	382	604	1,154
Kentucky	536	3,370	145	4.3	1,806	78	445	450	31	532	145	203
Tennessee	516	3,080	136	4.4	1,589	70	348	554	19	289	79	300
Alabama	405	2,760	123	4.45	1,118	50	291	617	9	55	64	82
Mississippi	513	2,500	112	4.5	1,282	57	267	445	10	238	55	267
Arkansas	433	2,750	118	4.3	1,191	51	271	450	10	314	77	69
Louisiana	254	2,070	91	4.4	526	23	195	101	5	24	65	136
Oklahoma	749	3,250	138	4.25	2,434	103	467	414	51	1,077	170	255
Texas	1,334	2,930	129	4.4	3,909	172	923	1,108	59	999	285	535
South Central	4,740	2,923	127.4	4.36	13,855	604	3,207	4,139	194	3,528	940	1,847

See footnotes at end of table.

TABLE 384.—*Milk and butterfat produced and milk used for each purpose on farms, 1933*—Continued

State and division	Milk cows on farms [1]	Estimated production per milk cow during year [2]		Percentage of butterfat in milk produced	Total production on farms [2]		Disposition of milk					
		Milk	Butterfat		Milk	Butterfat	Used as whole milk or cream on farms where produced	Used for making butter on farms	Whole milk fed to calves	Milk skimmed or separated for sale of butterfat	Retailed by producers [3]	Milk sold at wholesale [4]
	Thousands	*Lb.*	*Lb.*	*Percent*	*Million lb.*	*Million lb.*	*Million lb.*	*Million lb.*	*Million lb.*	*Million lb.*	*Million lb.*	*Million lb.*
Montana	192	3,850	150	3.9	739	29	98	110	25	368	65	73
Idaho	193	5,280	209	3.95	1,019	40	107	52	29	548	41	242
Wyoming	70	3,840	148	3.85	269	10	37	27	8	133	24	40
Colorado	262	4,000	152	3.8	1,048	40	142	84	41	458	49	274
New Mexico	68	3,150	126	4.0	214	9	44	31	4	86	35	14
Arizona	44	4,740	182	3.85	209	8	25	11	5	56	42	70
Utah	108	5,280	201	3.8	570	22	63	39	18	166	37	247
Nevada	21	4,730	180	3.8	99	4	8	4	4	63	14	6
Washington	304	5,350	217	4.05	1,626	66	150	66	55	514	140	701
Oregon	252	4,850	209	4.3	1,222	53	123	50	42	507	86	414
California	599	6,470	246	3.8	3,876	147	179	36	116	925	405	2,215
Western	2,113	5,154	202.6	3.93	10,891	428	976	510	347	3,824	938	4,296
United States	24,489	4,178	164.2	3.93	102,309	4,020	12,222	11,217	2,802	35,699	6,978	33,391

[1] Estimated average number of milk cows on farms during 1933. The estimates exclude heifers not yet fresh but include some cows which had calves running with them much of the year.
[2] These estimates exclude milk sucked by calves, milk spilled or lost up to the time it is measured, skimmed, or delivered by farmers, and milk produced by cows not on farms.
[3] Approximations based chiefly on the population in small towns and rural areas where most families purchase their milk supply directly from local farmers. Estimates include milk equivalent of cream.
[4] Estimates include milk delivered to creameries, condensaries, cheese factories, and market-milk receiving stations, but exclude market milk sold to other farmers for local retail delivery.
[5] As computed by counties.

Bureau of Agricultural Economics; estimates of Division of Crop and Livestock Estimates.

TABLE 385.—*Milk cows: Average price* [1] *per head received by producers, United States, 1924–33*

Year	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924	55.57	55.49	55.88	55.92	56.37	56.45	55.46	55.74	55.54	54.30	55.05	54.00	55.48
1925	54.81	54.79	56.19	56.85	57.88	57.79	57.95	58.26	58.68	60.17	60.69	60.38	57.87
1926	62.06	63.41	63.17	65.65	66.63	66.74	66.68	65.37	66.12	66.26	66.91	66.74	65.51
1927	66.77	68.22	70.18	71.98	72.43	74.19	74.15	74.24	76.10	78.62	81.09	82.36	74.19
1928	83.11	86.34	87.95	88.55	89.00	89.90	90.37	90.43	92.56	92.86	93.05	92.87	89.75
1929	91.54	91.77	92.80	93.55	94.94	95.29	96.34	95.26	95.55	95.12	94.48	92.61	94.10
1930	89.17	85.02	81.00	80.70	79.53	77.62	71.75	65.91	66.23	66.37	64.68	62.00	74.16
1931	59.90	56.88	56.34	56.53	54.45	51.50	49.47	47.85	46.68	45.58	45.99	44.17	51.28
1932	42.09	40.57	39.42	39.29	37.34	36.10	36.44	36.20	35.88	34.39	33.24	32.40	36.95
1933	31.67	31.29	31.30	31.97	34.42	35.31	36.45	34.83	34.34	33.54	32.08	31.20	33.20

[1] As reported by country dealers.

Bureau of Agricultural Economics.
Monthly prices, by States, weighted by number of milk cows Jan. 1, to obtain a price for the United States; yearly price is a simple average of 12 months. For previous data see 1930 or earlier Yearbooks.

TABLE 386.—*Average production, feed cost, and value per cow, of butterfat and milk, classified on butterfat basis, 12-month records completed in 1932 by dairy herd-improvement associations, United States*

Cows	Milk per cow	Butterfat: Quantity	Butterfat: Price per pound	Butterfat: Value	Feed costs: Roughage, including pasture	Feed costs: Grain	Feed costs: Total	Value of product over feed cost	Return for $1 spent for feed	Feed cost per pound of butterfat	Feed cost per 100 pounds of milk
Number	*Pounds*	*Pounds*	*Dollar*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
26	0	0	0.00	0	31	5	36	−36	0.00	0.00	0.00
68	352	14	.58	8	31	6	37	−29	.22	2.64	10.51
387	1,662	64	.52	33	30	10	40	−7	.82	.62	2.41
1,612	2,703	106	.51	53	30	12	42	11	1.26	.40	1.55
7,010	4,029	155	.47	73	30	15	45	28	1.62	.29	1.12
20,429	5,295	203	.47	96	32	18	50	46	1.92	.25	.94
36,729	6,492	251	.47	118	33	21	54	64	2.19	.22	.83
43,823	7,630	299	.47	142	34	25	59	83	2.41	.20	.77
36,304	8,761	348	.48	166	35	28	63	103	2.63	.18	.72
22,094	9,883	397	.48	190	36	31	67	123	2.84	.17	.68
10,866	11,062	446	.49	219	38	35	73	146	3.00	.16	.66
4,521	12,268	496	.50	249	40	39	79	170	3.15	.16	.64
1,741	13,538	546	.52	286	42	43	85	201	3.36	.16	.63
636	14,901	596	.56	333	48	49	97	236	3.43	.16	.65
260	16,320	645	.55	352	50	53	103	249	3.42	.16	.63
100	17,652	696	.57	398	53	57	110	288	3.62	.16	.62
40	18,482	747	.58	433	57	63	120	313	3.61	.16	.65
20	20,088	800	.48	386	53	62	115	271	3.36	.14	.57
10	22,561	843	.44	367	53	66	119	248	3.08	.14	.53
3	24,920	893	.58	522	59	62	121	401	4.31	.14	.49
2	15,136	938	.25	233	33	66	99	134	2.35	.11	.65
2	28,440	1,044	.48	502	40	46	86	416	5.84	.08	.30
Average	7,858	310	.48	148	34	26	60	88	2.47	.19	.76

Bureau of Dairy Industry.

TABLE 387.—*Dairy products: Annual per capita consumption in the United States, 1919–32*

Year	Butter [1]	Cheese [2]	Evaporated milk [3]	Condensed milk [3]	Milk used in cities and villages [4]	Milk equivalent, all products [5]
	Pounds	*Pounds*	*Pounds*	*Pounds*	*Gallons*	*Gallons*
1919	14.8	3.50				
1920	14.7	3.50				
1921	16.1	3.50			38.0	
1922	16.5	3.70				
1923	17.0	3.90			38.1	
1924	17.38	4.20			38.6	91.9
1925	17.39	4.26			38.9	92.3
1926	17.76	4.36	11.56	2.75	39.3	94.9
1927	17.49	4.14	11.59	2.60	39.6	94.7
1928	17.12	4.11	12.50	2.56	39.8	94.4
1929	17.29	4.62	13.83	2.75	40.8	94.5
1930	17.30	4.71	13.68	2.66	40.6	95.0
1931	18.00	4.49	13.70	2.29	40.0	96.9
1932	18.14	4.39	14.41	1.80	40.0	95.5
1933						[6] 92.9

[1] Includes both farm- and factory-made butter. These estimates include some butter used in other products such as ice cream.
[2] Includes all kinds of cheese except cottage, pot, and bakers.
[3] Includes some condensed and evaporated milk used in other products, also includes both whole- and skim-milk product.
[4] Milk and the milk equivalent of cream consumed per capita by that part of the population not on rural farms. These estimates include some milk and cream used in such products as ice cream and supersede estimates previously issued.
[5] Based on estimates of milk production on farms and elsewhere, with milk fed to calves deducted in calculating per capita consumption.
[6] Preliminary.

Bureau of Agricultural Economics.
Consumption of butter, cheese, evaporated milk, condensed milk, and milk equivalent of all dairy products is calculated from production, foreign trade, and domestic stocks. Milk used in cities and villages is calculated from board of health reports.

TABLE 388.—*Dairy herd-improvement and bull associations, United States, 1906–33*

Year beginning July	Dairy herd-improvement associations	Cooperative dairy bull associations	Year beginning July	Dairy herd-improvement associations	Cooperative dairy bull associations	Calendar year	Dairy herd-improvement associations	Cooperative dairy bull associations
	Number	*Number*		*Number*	*Number*		*Number*	*Number*
1906	1		1915	211	15	1925	732	220
1907	4		1916	346	24	1926	777	225
1908	6	3	1917	459	36	1927	837	248
1909	25	8	1918	353	44	1928	947	235
1910	40	9	1919	385	78	1929	1,090	339
1911	64	11	1920	468	123	1930	1,143	296
1912	82	11	1921	452	158	1931	1,112	359
1913	100	12	1922	513	190	1932	1,005	403
1914	163	14	1923	627	218	1933	881	342

Bureau of Dairy Industry.

TABLE 389.—*Dairy products: Quantity manufactured, 1925–32*

Product	1925	1926	1927	1928	1929	1930	1931	1932
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Creamery butter	1,361,526	1,451,766	1,496,495	1,487,049	1,597,027	1,595,231	1,667,452	1,694,132
Whey butter (made from whey cream)	1,774	2,872	1,217	1,097	1,221	2,516	(1)	(1)
Renovated or process butter	2,519	2,505	4,286	2,716	2,531	1,850	1,236	950
American cheese:								
Whole milk	347,240	335,915	307,777	335,253	370,314	378,816	374,648	370,743
Part skim	2,793	2,927	3,390	2,900	4,951	3,653	3,108	3,319
Full skim	3,298	1,384	1,888	3,048	1,074	669	416	225
Swiss cheese (including block)	23,457	20,883	18,141	16,718	19,406	26,393	28,234	25,533
Brick and Munster cheese	34,101	31,048	31,546	28,960	31,763	33,548	35,484	36,973
Limburger cheese	9,163	9,639	8,842	7,437	8,568	8,473	8,508	7,897
Cream and Neufchatel cheese	17,575	18,192	25,962	30,589	34,405	33,213	33,637	31,608
All Italian varieties of cheese	1,562	2,425	3,377	3,587	5,948	8,573	3,493	3,795
All other varieties of cheese	4,325	5,003	5,763	9,027	7,504	7,029	4,851	4,010
Cottage, pot, and bakers' cheese	59,485	67,977	75,679	87,525	94,941	97,641	101,617	103,524
Condensed milk (sweetened):								
Case goods:								
Skimmed	3,135	1,298	1,623	1,366	1,632	2,092	1,757	1,167
Unskimmed	186,807	154,944	161,355	139,077	145,922	121,626	97,469	70,288
Bulk goods:								
Skimmed	114,198	147,473	143,722	154,723	202,475	158,971	140,361	120,923
Unskimmed	44,758	55,737	39,668	38,660	51,689	62,421	45,887	42,628
Unsweetened condensed milk (plain condensed): [2]								
Bulk goods:								
Skimmed	86,954	116,758	126,085	147,625	153,624	156,212	145,416	138,646
Unskimmed	113,556	86,833	101,354	89,336	151,662	128,203	110,038	96,052
Evaporated milk (unsweetened):								
Case goods:								
Skimmed	5,994	11,985	8,100	10,618		1,650	86	
Unskimmed	1,202,456	1,158,476	1,273,815	1,337,022	1,499,644	1,449,149	1,428,993	1,570,612
Condensed or evaporated buttermilk	77,079	86,687	99,180	102,452	107,288	96,431	64,619	52,167
Dried or powdered buttermilk	20,246	31,378	38,435	45,502	54,215	64,601	50,535	48,712
Powdered whole milk	8,931	10,768	11,464	9,605	13,202	15,440	12,627	11,983
Powdered skimmed milk	73,317	91,718	118,123	147,990	207,579	260,675	261,938	270,194
Powdered cream	339	331	338	673	294	400	161	80
Dried casein (skim milk or buttermilk product)	16,660	16,953	18,033	22,151	30,537	41,965	35,335	24,428
Malted milk	18,050	20,673	22,116	21,128	22,850	22,691	19,197	13,215
Milk sugar (crude)	5,655	4,476	4,077	5,323	8,965	12,779	9,562	
Ice cream of all kinds (gallons) [3]	214,382	215,248	226,756	232,185	254,618	240,750	208,239	154,604

[1] Included in creamery butter.
[2] Unsweetened condensed milk (plain condensed) was classified as "Evaporated milk (unsweetened), bulk goods", in previous years.
[3] Production in commercial ice-cream factories only.

Bureau of Agricultural Economics, compiled from reports of factories made direct to the Bureau.
Figures beginning with the year 1929 are the most complete since these reports were inaugurated in 1918. Some allowance, therefore, should be made for this when comparing production since 1929 with that of previous years.

TABLE 390.—*Dairy products: Quantity manufactured, by months, 1932*

Product	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
Creamery butter [1]	124, 320	124, 894	133, 095	141, 741	186, 607	190, 644	163, 370	149, 625	127, 386	121, 819	109, 790	120, 841	1, 694, 132
Renovated or process butter	85	51	73	47	54	52	52	78	96	98	127	137	950
American cheese:													
Whole milk	20, 895	21, 993	25, 484	29, 706	41, 933	48, 534	40, 205	34, 796	31, 510	29, 267	23, 601	22, 819	370, 743
Part skim	247	275	318	274	313	261	229	201	207	264	356	374	3, 319
Full skim	21	20	22	13	10	13	14	10	5	17	28	52	225
Swiss cheese (including block)	724	669	945	1, 671	3, 466	4, 040	3, 443	3, 004	2, 618	2, 236	1, 578	1, 139	25, 533
Munster cheese	624	602	724	643	689	544	420	361	360	489	570	674	6, 700
Brick cheese	2, 070	2, 034	2, 431	2, 893	3, 575	3, 528	2, 645	2, 341	2, 193	2, 183	2, 237	2, 143	30, 273
Limburger cheese	456	443	620	689	955	935	763	669	608	683	564	512	7, 897
All Italian varieties of cheese	303	336	376	314	365	347	290	282	267	313	284	318	3, 795
Neufchatel cheese	73	75	89	74	99	160	83	56	63	77	80	73	1, 002
Cream cheese	2, 776	2, 761	2, 762	2, 458	2, 778	2, 566	2, 207	2, 322	2, 437	2, 492	2, 578	2, 469	30, 606
All other varieties of cheese	371	348	353	354	352	356	267	276	326	327	335	345	4, 010
Cottage, pot, and bakers' cheese	8, 468	9, 005	9, 939	9, 488	10, 475	10, 757	8, 569	8, 053	7, 483	7, 407	7, 082	6, 798	103, 524
Sweetened condensed milk:													
Case goods—													
Skimmed	164	118	78	135	83	100	63	126	34	62	136	68	1, 167
Unskimmed	7, 459	5, 859	6, 941	9, 316	5, 990	4, 993	5, 264	4, 632	4, 649	5, 688	4, 269	5, 228	70, 288
Bulk goods—													
Skimmed	10, 056	8, 791	8, 718	11, 019	14, 648	15, 502	8, 652	7, 996	9, 460	9, 729	7, 909	8, 443	120, 923
Unskimmed	3, 020	3, 332	3, 647	3, 655	4, 249	4, 708	2, 976	3, 592	4, 255	3, 973	2, 835	2, 836	42, 628
Unsweetened condensed milk (plain condensed):													
Bulk— [2]													
Skimmed	10, 054	9, 194	9, 636	10, 995	15, 788	15, 891	15, 053	14, 250	12, 327	9, 057	9, 348	7, 053	138, 646
Unskimmed	5, 121	6, 162	8, 012	10, 586	12, 587	12, 272	10, 323	9, 733	7, 265	5, 522	4, 323	4, 146	96, 052
Evaporated milk (unsweetened):													
Case goods—Unskimmed	99, 843	105, 308	128, 058	149, 255	191, 116	191, 592	157, 894	134, 797	113, 025	105, 594	92, 513	101, 617	1, 570, 612
Concentrated skim milk (for animal feed)	1, 263	1, 081	851	1, 013	1, 215	1, 044	958	921	781	930	693	650	11, 400
Condensed or evaporated buttermilk (including concentrated product)	3, 800	3, 463	3, 767	4, 033	5, 425	5, 063	4, 716	4, 648	4, 603	4, 560	3, 959	4, 130	52, 167
Dried or powdered buttermilk	3, 966	4, 068	4, 308	4, 213	5, 266	5, 430	4, 376	4, 067	3, 280	3, 117	3, 020	3, 601	48, 712
Powdered whole milk	758	801	960	875	1, 551	2, 096	1, 182	913	860	671	689	627	11, 983
Powdered skim milk	20, 533	19, 281	22, 900	25, 307	31, 476	32, 353	24, 004	19, 936	18, 179	19, 032	17, 281	19, 912	270, 194
Powdered cream	7	5	4	10	5	7	2	19	2	9	8	2	80
Dried casein (skim milk, or buttermilk product)	2, 137	2, 028	2, 480	2, 657	2, 870	2, 881	2, 052	1, 627	1, 404	1, 456	1, 352	1, 484	24, 428
Malted milk	1, 114	1, 318	1, 325	1, 290	1, 217	1, 082	843	999	1, 026	1, 129	1, 056	816	13, 215
Ice cream, gallons [3]	7, 547	7, 719	8, 968	12, 313	18, 245	21, 610	23, 339	20, 905	14, 163	7, 815	6, 349	5, 631	154, 604
Sherbets, gallons [3]	88	101	134	178	292	392	338	290	177	94	69	55	2, 208

[1] Includes whey butter.
[2] Unsweetened condensed milk (plain condensed) was classified as "Evaporated milk (unsweetened) bulk goods", in previous years.
[3] Production in commercial ice-cream factories only.

Bureau of Agricultural Economics; compiled from reports made direct to the Bureau.

TABLE 391.—*Fluid milk and cream: Receipts*[1] *at New York, Philadelphia, Boston, and Chicago, by origin, 1932 and 1933*

Product and State of origin	New York		Philadelphia		Boston		Chicago
	1932	1933	1932	1933	1932	1933	1933
	40-quart units[2]	*40-quart units*[2]	*40-quart units*[2]	*40-quart units*[2]	*40-quart units*[2]	*40-quart units*[2]	*40-quart units*[2]
Fluid milk:							
Connecticut	240,152	231,895					
Delaware	37,533	34,887	531,282	517,018			
Indiana		2,648		340			
Maine					759,217	769,494	
Maryland	159,558	153,104	893,551	847,706			
Massachusetts	158,536	133,206			596,958	544,091	
New Hampshire					744,764	670,569	
New Jersey	[3] 2,935,270	3,337,760	592,659	562,933			
New York	[3] 23,907,182	22,383,523			352,067	359,366	
Ohio	14,578	4,910					
Pennsylvania	[3] 5,428,443	5,383,028	4,764,898	4,844,597			
Rhode Island					387	1,883	
Tennessee		496					
Vermont	[3] 1,550,059	1,376,316			3,840,926	3,376,147	
Virginia			13,836	5,548			
West Virginia			41,575	9,367			
Wisconsin			291	122			
Total	[3] 34,431,311	33,041,773	6,838,092	6,787,631	6,294,319	5,721,550	
Fluid cream:							
Arkansas							6,518
Connecticut	5,945	6,707			1	200	
Delaware	2,455	3,292	6,324	3,178			
District of Columbia				150			
Illinois	1,478	725	8,985	2,263	5,960	3,950	158,014
Indiana	23,672	17,355	70,147	44,434	26,434	22,563	19,298
Iowa							6,160
Kansas					5,165	7,975	122
Kentucky					3,742		8,320
Maine					57,793	52,626	
Maryland	2,665	670	39,701	34,202	6,640	1,700	
Massachusetts	296	868			1,264	1,509	
Michigan	1,200	642	2,050	1,400	29,954	45,302	3,104
Minnesota	300		1,071	5,925	230	21,882	
Mississippi							1
Missouri	7,098	800	2,618	4,009	36,536	30,703	26,382
New Hampshire					17,071	19,954	
New Jersey	[3] 24,101	23,474	620	2,032			
New York	[3] 1,433,043	1,135,418	5,265	2,121	24,237	23,325	
Ohio	23,816	30,248	12,288	8,940	18,399	15,435	5,157
Oklahoma							180
Pennsylvania	[3] 190,327	200,578	37,206	69,497		207	
Rhode Island					2,041	73	
Tennessee	2,824	5,600	1,800		11,695	11,383	248
Texas		200	400	200			2
Vermont	[3] 117,695	121,346			237,635	228,457	
Virginia			6,982	4,434			
West Virginia		200	4,031	2,620			
Wisconsin	23,521	25,338	73,792	83,172	57,208	52,162	314,817
Canada	2,456						
Total	[3] 1,862,892	1,573,461	273,280	268,577	542,005	539,406	548,323

[1] Figures include both rail and truck receipts at New York, Philadelphia, and Boston; Chicago receipts are rail only.
[2] 40-quart units equal standard 10-gallon cans, or about 86 pounds for milk and about 82.5 pounds for cream.
[3] Revised.

Bureau of Agricultural Economics.

TABLE 392.—*Milk and cream, condensed and evaporated: International trade, average 1925–29, annual 1929–32*

Country	Calendar year									
	Average, 1925–29		1929		1930		1931		1932 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Netherlands	319,831	291	378,059	139	393,151	695	415,437	1,328	396,933	109
United States	118,215	2,830	110,184	2,634	90,459	1,611	75,085	1,245	50,807	1,188
Switzerland	76,691	35	78,475	13	72,660	15	63,432	18	29,491	18
Denmark	55,666	17	54,934	2	51,916	6	49,233	1	56,591	0
Canada	32,287	142	26,746	179	20,470	164	14,458	148	21,013	51
Australia [2]	20,852	70	17,395	52	11,459	21	10,664	4	--------	--------
Norway	18,462	789	15,534	323	13,447	111	11,280	155	8,330	55
Italy	9,804	1,335	4,629	2,124	5,141	1,761	6,374	1,461	4,882	1,009
Irish Free State	8,658	1,598	10,503	1,116	9,720	416	6,565	734	10,289	1,217
Belgium [3]	2,582	1,416	4,369	993	7,389	1,420	9,541	1,808	6,467	[4] 5,036
Czechoslovakia	532	360	199	222	280	281	294	250	20	181
New Zealand [4]	1,494	23	2,175	7	2,331	1	1,004	9	1,813	91
Total	665,074	8,906	703,202	7,804	678,423	6,502	663,367	7,161	586,636	8,955
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	21,867	280,504	27,732	296,501	22,441	291,010	13,685	313,077	9,450	307,093
Cuba	0	47,460	0	46,492	0	38,767	0	16,433	0	--------
Dutch East Indies	15	27,265	0	34,990	0	33,416	0	28,695	0	[5] 10,133
Philippine Islands	0	25,810	0	29,875	0	29,077	0	35,253	0	28,526
British India	0	22,365	0	27,436	0	27,261	0	21,531	0	19,217
Germany [6]	1,960	15,079	4,235	8,264	6,772	4,351	2,839	1,966	2,335	1,187
France	8,910	13,493	10,204	12,975	13,127	14,965	12,594	17,610	14,370	8,031
China	0	12,227	0	13,285	0	11,353	0	10,026	0	9,422
Union of South Africa	27	11,305	16	12,132	447	4,310	1,060	2,510	1,076	1,327
Japan	320	9,171	317	8,865	786	8,396	2,228	7,679	2,388	3,549
Peru [4]	0	8,593	0	8,667	0	7,708	0	5,966	0	--------
Siam [7]	0	7,076	0	8,447	0	8,311	0	9,692	0	11,473
Indo-China	162	6,275	71	8,245	86	7,321	[2] 31	[2] 7,399	--------	--------
Greece	0	6,644	0	7,825	0	7,218	0	6,182	0	3,767
Jamaica	0	4,198	0	5,084	0	5,129	0	5,988	0	--------
Algeria	186	3,694	270	4,105	[2] 1,052	[2] 6,056	[2] 77	[2] 7,222	--------	--------
Trinidad and Tobago	0	3,181	0	3,850	0	4,130	0	4,533	0	4,142
Tunis	0	2,343	0	2,692	0	3,118	0	3,242	0	3,304
Ceylon	0	1,602	0	2,402	0	2,332	0	1,647	0	1,533
Brazil	0	1,431	0	1,252	0	1,205	0	494	0	317
Argentina	15	1,418	15	1,578	17	1,550	13	1,049	14	842
Egypt	353	1,356	504	1,525	123	1,808	0	1,790	0	1,359
Austria [6]	213	1,214	371	1,247	676	1,384	395	1,802	207	668
Poland	34	327	1	385	7	267	1	239	0	65
Total	34,062	514,031	43,736	548,119	45,534	520,443	32,923	512,025	29,840	415,955

[1] Preliminary.
[2] International Yearbook of Agricultural Statistics.
[3] Exports include powdered milk.
[4] Imports include powdered milk.
[5] Java and Madura only.
[6] Includes some powdered milk.
[7] Figures for 12 months ended Mar. 31 of following year.

Bureau of Agricultural Economics; official sources except where otherwise stated.

TABLE 393.—*Milk: Average price per 100 pounds received by producers, United States, 1924–33*

Year	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Weighted average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924	2.86	2.84	2.75	2.50	2.40	2.40	2.29	2.18	2.35	2.43	2.45	2.55	2.49
1925	2.48	2.55	2.62	2.48	2.47	2.47	2.45	2.55	2.56	2.73	2.69	2.65	2.55
1926	2.74	2.68	2.56	2.46	2.39	2.35	2.40	2.37	2.47	2.46	2.60	2.61	2.50
1927	2.68	2.64	2.55	2.58	2.51	2.44	2.40	2.36	2.48	2.55	2.56	2.64	2.52
1928	2.67	2.69	2.61	2.51	2.49	2.45	2.45	2.46	2.56	2.60	2.63	2.65	2.55
1929	2.64	2.64	2.63	2.59	2.53	2.47	2.46	2.50	2.52	2.55	2.59	2.60	2.55
1930	2.53	2.44	2.38	2.35	2.28	2.22	2.15	2.18	2.25	2.30	2.31	2.20	2.30
1931	2.04	1.96	1.92	1.85	1.73	1.66	1.62	1.64	1.70	1.72	1.73	1.67	1.77
1932	1.56	1.49	1.43	1.39	1.29	1.17	1.20	1.21	1.25	1.28	1.26	1.26	1.31
1933	1.25	1.16	1.10	1.08	1.14	1.21	1.33	1.39	1.47	1.51	1.51	1.49	1.29

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by number of milk cows Jan. 1, to obtain a price for the United States. Prices quoted are for milk sold to dealers, factories, etc.

TABLE 394.—*Milk: Milk dealers' average buying prices per hundredweight for standard grade milk testing 3.5 percent butterfat which is used for city distribution as milk and cream, 1924–33*

[F.o.b. local shipping point or country plant]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924	2.86	2.74	2.69	2.63	2.56	2.42	2.47	2.51	2.61	2.64	2.71	2.67	2.63
1925	2.68	2.73	2.65	2.62	2.58	2.50	2.55	2.65	2.66	2.79	2.78	2.80	2.67
1926	2.87	2.79	2.78	2.77	2.64	2.62	2.65	2.68	2.71	2.76	2.79	2.84	2.74
1927	2.83	2.78	2.74	2.71	2.67	2.62	2.63	2.67	2.68	2.75	2.78	2.81	2.72
1928	2.87	2.83	2.79	2.74	2.65	2.65	2.66	2.73	2.76	2.82	2.86	2.88	2.77
1929	2.87	2.86	2.83	2.79	2.77	2.69	2.76	2.77	2.82	2.85	2.88	2.86	2.81
1930	2.81	2.77	2.74	2.69	2.63	2.57	2.60	2.60	2.73	2.69	2.69	2.59	2.68
1931	2.46	2.38	2.33	2.25	2.14	2.16	2.13	2.20	2.14	2.14	2.10	2.00	2.20
1932	1.95	1.88	1.80	1.77	1.71	1.69	1.62	1.64	1.64	1.68	1.64	1.57	1.72
1933	1.55	1.50	1.46	1.47	1.45	1.49	1.57	1.67	1.72	1.77	1.79	1.80	1.60

Bureau of Agricultural Economics. Compiled from reports of the Bureau, secured through the cooperation of milk distributors, producers' associations, and municipal officers.

TABLE 395.—*Milk: Average prices per hundredweight paid producers by condensaries for milk testing 3.5 percent butterfat, f.o.b. factory, 1924–33*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1924	2.18	2.13	2.09	1.93	1.72	1.64	1.66	1.66	1.66	1.70	1.71	1.85	1.83
1925	1.92	1.93	1.93	1.93	1.88	1.82	1.91	1.98	2.01	2.09	2.15	2.15	1.81
1926	2.17	2.06	2.03	1.93	1.81	1.79	1.79	1.84	1.95	2.00	2.09	2.22	1.97
1927	2.28	2.28	2.20	2.14	2.00	1.91	1.91	2.00	2.07	2.15	2.20	2.25	2.12
1928	2.27	2.22	2.08	2.05	1.97	1.92	1.96	2.07	2.16	2.19	2.21	2.28	2.12
1929	2.23	2.18	2.14	2.07	1.99	1.92	1.91	1.96	1.97	2.04	2.07	2.02	2.04
1930	1.87	1.71	1.69	1.68	1.67	1.58	1.54	1.61	1.72	1.75	1.67	1.56	1.67
1931	1.42	1.35	1.27	1.21	1.12	1.04	1.02	1.02	1.12	1.22	1.23	1.19	1.18
1932	1.12	.99	.95	.93	.86	.81	.77	.80	.85	.86	.86	.92	.89
1933	.95	.84	.82	.81	.93	1.00	1.07	1.10	1.09	1.10	1.08	1.00	.98

Bureau of Agricultural Economics. Compiled from reports of the Bureau, secured through the cooperation of firms operating condensaries.

TABLE 396.—*Milk, standard or grade B: Retail price [1] per quart, delivered to family trade in cities, 1921–33*

City	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
Boston	15.5	13.6	14.3	13.4	13.9	14.5	14.7	15.2	15.4	15.3	12.9	10.5	11.0
New York	15.1	14.6	14.8	13.9	14.8	15.0	15.3	15.6	16.0	15.7	14.7	12.0	11.1
Philadelphia	11.7	11.2	12.5	12.0	12.0	12.2	13.0	13.0	13.3	13.0	11.7	10.0	9.9
Pittsburgh	14.1	12.5	14.3	14.1	14.1	14.0	14.5	14.0	14.2	13.3	11.6	8.9	9.2
Cleveland	13.5	11.4	13.8	13.3	14.0	14.2	14.2	13.9	12.5	12.1	10.7	8.7	8.9
Indianapolis	12.5	10.4	11.8	11.9	11.0	12.0	12.0	12.1	12.3	11.9	10.2	9.4	8.5
Chicago	13.3	12.0	13.5	14.0	14.0	14.0	14.0	14.0	14.0	14.0	13.0	11.2	9.8
Detroit	13.0	12.5	13.8	13.8	13.6	14.0	13.9	14.0	14.0	13.1	11.6	9.1	9.2
Milwaukee	9.4	9.2	10.4	10.8	10.0	10.8	11.0	11.0	11.2	11.4	9.9	8.3	8.4
Minneapolis	11.2	10.4	11.4	11.0	11.3	11.1	11.2	12.0	12.0	11.0	10.0	8.1	7.1
St. Louis	13.4	11.1	13.0	13.0	13.0	13.0	13.0	13.0	13.0	12.9	11.7	10.1	10.1
Kansas City, Mo	13.8	11.9	13.0	13.0	13.0	13.0	13.0	13.4	13.5	13.2	12.2	10.2	9.8
Washington, D.C	14.7	13.3	14.2	14.3	14.2	14.6	15.0	14.9	14.5	14.5	14.1	13.3	12.6
Jacksonville	19.0	16.0	17.0	18.0	18.8	20.2	19.2	18.6	18.6	18.5	15.8	12.7	13.4
Louisville	12.8	10.2	12.4	12.5	12.7	12.5	12.5	12.6	13.0	12.4	11.3	10.0	10.3
Birmingham	19.0	17.1	16.0	16.9	18.0	18.0	17.0	18.0	16.1	16.0	13.5	13.0	13.2
New Orleans	15.8	14.0	14.2	14.3	13.2	14.0	14.0	14.0	14.0	14.0	12.7	10.7	11.0
Dallas	16.0	14.0	15.0	15.0	15.0	12.8	12.4	12.3	13.0	13.0	11.0	9.4	8.5
Butte	13.4	12.2	12.8	13.3	13.4	13.1	13.0	13.0	13.0	13.0	12.4	10.0	10.0
Denver	11.3	10.0	12.0	11.9	11.2	12.0	12.0	12.0	12.0	11.0	10.0	10.0	10.0
Salt Lake City	12.5	8.8	10.1	9.8	10.6	10.3	10.5	10.0	10.0	10.0	9.9	9.0	8.8
Seattle	12.1	12.6	12.5	10.8	12.2	12.6	12.0	11.7	12.2	11.0	10.7	9.6	9.7
Portland, Oreg	12.8	11.5	12.2	11.2	11.4	12.0	11.9	12.0	12.0	12.6	10.4	9.1	9.0
Los Angeles	15.2	14.2	15.0	15.5	14.9	15.0	15.0	15.0	15.0	14.6	12.6	10.5	10.7
San Francisco	14.4	12.6	12.8	14.0	14.0	14.0	14.0	14.0	14.0	14.0	11.8	12.0	11.3

[1] Dealers' selling prices per quart, delivered to homes.

Bureau of Agricultural Economics; compiled from reports of the Bureau secured through the cooperation of milk distributors, producers' associations, and municipal officers.

TABLE 397.—*Butterfat: Average price per pound received by producers, United States, 1924–33*

Year	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924	50.6	48.5	46.4	40.8	37.6	37.1	37.8	35.8	36.6	36.6	37.0	41.1	39.8
1925	40.6	37.9	41.5	40.5	40.3	39.9	40.5	41.3	42.6	47.1	47.8	47.6	41.9
1926	45.2	43.1	42.9	40.4	39.1	39.3	38.6	38.6	40.5	42.4	44.8	47.9	41.3
1927	46.9	46.8	48.0	47.1	43.6	40.8	40.3	39.4	41.6	44.4	45.8	47.8	43.7
1928	48.5	46.0	46.5	45.4	44.4	43.5	43.3	44.3	46.5	47.0	47.6	49.2	45.6
1929	47.6	47.8	48.3	46.5	45.4	43.6	43.4	43.3	44.6	45.6	43.5	41.9	44.9
1930	36.7	35.4	34.9	37.3	36.5	31.6	31.6	35.2	37.7	37.0	35.3	30.6	34.8
1931	26.2	25.0	27.5	26.4	21.2	20.5	21.1	23.9	26.6	30.3	28.2	27.3	24.7
1932	22.8	19.8	19.5	17.8	16.3	14.6	14.4	17.5	17.6	17.8	18.4	21.1	17.6
1933	18.9	15.8	15.1	16.5	20.2	19.7	23.0	18.4	19.6	20.1	20.4	18.0	19.1

Bureau of Agricultural Economics. Quotations include some purchases other than for the manufacture of butter. Based on reports of special price reporters. Monthly prices, by States, weighted by number of milk cows Jan. 1, to obtain a price for the United States; yearly price obtained by weighting monthly prices by production of creamery butter.

TABLE 398.—*Creamery butter: Production in factories, United States, 1923–32*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
1923	83,688	74,134	88,311	100,547	134,350	158,371	138,278	120,802	102,273	89,297	74,909	77,254	1,242,214
1924	87,468	86,731	95,760	106,012	139,954	161,992	164,443	137,836	115,102	100,536	77,282	82,964	1,356,080
1925	87,121	80,218	92,302	107,023	145,478	164,253	158,920	136,738	108,325	104,520	85,492	91,136	1,361,526
1926	97,893	94,222	112,432	121,049	155,912	178,276	159,554	133,294	116,732	103,068	88,481	90,853	1,451,766
1927	97,965	95,522	111,451	126,415	168,808	188,792	170,484	146,808	113,546	102,399	86,058	88,247	1,496,495
1928	101,045	99,394	111,777	118,849	156,294	181,037	167,601	145,430	119,499	105,894	87,745	92,484	1,487,049
1929	103,519	99,963	114,404	133,684	174,341	192,869	185,317	152,192	123,582	118,116	97,186	101,854	1,597,027
1930	108,382	102,252	115,679	133,271	184,385	189,788	167,559	137,420	122,580	120,247	101,974	111,694	1,595,231
1931	118,354	109,596	126,792	145,367	183,783	194,256	161,296	140,395	120,936	126,569	117,035	123,073	1,667,452
1932	124,320	124,894	133,095	141,741	186,607	190,644	163,370	149,625	127,386	121,819	109,790	120,841	1,694,132

Bureau of Agricultural Economics. Compiled from reports of factories made direct to the Bureau. Figures beginning with the year 1929 are the most complete since these reports were inaugurated in 1918. Some allowance, therefore, should be made for this when comparing production since 1929 with that of previous years.

TABLE 399.—*Creamery butter production in factories, by States, average 1926–30, annual 1931 and 1932*

State	Average 1926–30	1931 [1]	1932 [1]
	1,000 pounds	*1,000 pounds*	*1,000 pounds*
Maine	374	94	50
New Hampshire	51	8	
Vermont	5, 573	3, 402	2, 455
Massachusetts	2, 074	1, 394	1, 193
Rhode Island	63	24	15
Connecticut	461	382	333
New England	8, 596	5, 304	4, 046
New York	11, 473	10, 024	9, 777
New Jersey	44	63	37
Pennsylvania	11, 349	11, 090	11, 086
Middle Atlantic	22, 866	21, 177	20, 900
Ohio	78, 845	81, 515	81, 140
Indiana	61, 278	67, 991	75, 507
Illinois	63, 967	67, 282	70, 433
Michigan	67, 313	75, 601	78, 609
Wisconsin	155, 644	176, 091	170, 399
E. North Central	427, 047	468, 480	476, 088
Minnesota	276, 013	284, 270	281, 659
Iowa	194, 548	219, 428	219, 531
Missouri	71, 811	79, 435	81, 702
North Dakota	36, 234	50, 412	49, 336
South Dakota	35, 656	42, 080	39, 700
Nebraska	93, 018	86, 084	85, 660
Kansas	54, 661	68, 997	74, 587
W. North Central	761, 941	830, 706	832, 175
Delaware	50	35	56
Maryland	197	80	61
Dist. of Columbia	10		
Virginia	5, 490	5, 740	6, 060
West Virginia	388	362	440
North Carolina	1, 960	2, 081	2, 805
South Carolina	427	594	924
Georgia	2, 354	2, 102	2, 638
Florida	117	257	316
South Atlantic	10, 993	11, 251	13, 300
Kentucky	18, 771	18, 288	19, 868
Tennessee	15, 605	14, 997	16, 518
Alabama	1, 484	1, 950	2, 637
Mississippi	7, 107	7, 337	8, 506
E. South Central	42, 967	42, 572	47, 529
Arkansas	1, 793	3, 066	5, 205
Louisiana	493	1, 452	1, 885
Oklahoma	23, 596	28, 093	35, 156
Texas	22, 213	30, 291	34, 948
W. South Central	48, 095	62, 902	77, 194
Wyoming	2, 141	2, 290	2, 316
Colorado	21, 061	21, 993	21, 974
New Mexico	562	1, 080	927
Idaho	22, 115	28, 644	28, 559
Arizona	1, 960	2, 547	2, 484
Utah	10, 106	11, 963	12, 638
Nevada	2, 211	1, 974	1, 857
Montana	16, 430	14, 864	14, 182
Mountain	76, 586	85, 355	84, 937
Washington	30, 144	37, 293	35, 612
Oregon	23, 083	29, 062	29, 029
California	73, 196	73, 350	73, 322
Pacific	126, 423	139, 705	137, 963
Total	1, 525, 514	1, 667, 452	1, 694, 132

[1] Includes whey butter.

Bureau of Agricultural Economics; the compilations are made from reports of factories to the Bureau.

TABLE 400.—*Butter: Receipts, gross weight,*[1] *at 5 markets, 1919–33*

Year	New York	Chicago	Philadelphia	Boston	San Francisco
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1919	226, 698	185, 779	51, 191	73, 223	19, 663
1920	164, 608	176, 746	48, 630	72, 993	24, 412
1921	213, 978	193, 593	58, 926	74, 303	25, 264
1922	241, 604	213, 101	64, 551	80, 473	27, 778
1923	243, 764	225, 892	68, 598	82, 659	25, 520
1924	248, 759	258, 083	76, 731	86, 921	26, 260
1925	244, 127	254, 308	72, 064	82, 476	28, 680
1926	252, 742	236, 546	79, 345	83, 243	27, 666
1927	261, 322	235, 200	81, 727	84, 617	26, 709
1928	250, 593	230, 514	84, 495	87, 324	24, 032
1929	265, 760	244, 632	87, 386	81, 183	25, 155
1930	268, 070	233, 638	83, 762	72, 455	24, 738
1931	274, 218	243, 695	90, 585	77, 200	26, 692
1932	282, 520	223, 428	92, 243	81, 984	28, 750
1933	290, 449	261, 001	92, 387	88, 275	29, 017

[1] Gross weight includes container and wrapping.

Bureau of Agricultural Economics; compiled from reports of Bureau representatives in the various markets.

TABLE 401.—*Butter: Receipts, gross weight,*[1] *at 5 markets, by months, 1931–33, and total, 1924–33*

Market and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
New York:													
1931	22, 639	21, 645	22, 237	23, 169	25, 280	31, 434	25, 661	18, 860	19, 334	20, 904	20, 773	22, 282	274, 218
1932	23, 243	24, 212	24, 578	22, 382	30, 222	32, 237	25, 276	24, 220	19, 090	18, 235	18, 550	20, 275	282, 520
1933	25, 238	21, 009	23, 328	21, 215	27, 824	29, 189	26, 896	27, 328	20, 892	23, 173	22, 111	22, 246	290, 449
Chicago:													
1931	16, 375	15, 584	19, 601	21, 833	27, 162	32, 112	24, 265	18, 354	16, 584	17, 267	17, 503	17, 055	243, 695
1932	18, 318	16, 639	17, 281	18, 006	22, 876	27, 561	22, 981	19, 750	16, 493	14, 392	13, 913	15, 218	223, 428
1933	15, 779	15, 097	16, 821	16, 905	25, 017	31, 627	27, 308	26, 966	26, 888	21, 100	18, 979	18, 514	261, 001
Philadelphia:													
1931	7, 768	6, 972	7, 744	8, 170	8, 536	10, 247	7, 509	6, 468	6, 799	6, 036	6, 660	7, 676	90, 585
1932	7, 217	8, 151	7, 875	7, 848	9, 838	10, 322	7, 085	6, 568	6, 538	6, 603	7, 264	6, 934	92, 243
1933	8, 307	7, 680	8, 717	8, 061	9, 682	9, 584	7, 129	7, 773	6, 582	6, 063	6, 350	6, 459	92, 387
Boston:													
1931	5, 028	4, 911	5, 281	6, 533	8, 163	9, 874	8, 591	6, 537	5, 507	5, 292	5, 664	5, 819	77, 200
1932	5, 984	5, 947	6, 090	6, 714	9, 020	9, 952	8, 543	7, 762	5, 974	4, 880	5, 843	5, 275	81, 984
1933	6, 664	5, 860	6, 892	7, 009	9, 022	10, 388	9, 293	8, 611	6, 433	6, 041	5, 421	6, 641	88, 275
San Francisco:													
1931	1, 530	1, 417	2, 148	2, 928	3, 134	3, 009	2, 300	2, 440	1, 859	1, 743	1, 886	2, 298	26, 692
1932	2, 013	2, 022	2, 390	2, 995	3, 597	3, 157	2, 628	2, 107	1, 840	2, 019	1, 664	2, 318	28, 750
1933	2, 305	1, 691	2, 375	1, 955	3, 072	3, 133	2, 871	2, 628	2, 223	1, 936	2, 199	2, 629	29, 017
Total:													
1924	44, 476	47, 756	52, 328	51, 690	67, 572	91, 742	92, 036	67, 959	56, 247	49, 760	35, 868	39, 471	696, 905
1925	44, 825	41, 785	48, 351	50, 035	67, 454	88, 024	82, 918	68, 341	53, 303	51, 599	42, 099	42, 993	681, 727
1926	46, 809	46, 809	54, 646	53, 990	64, 653	89, 993	81, 053	59, 849	52, 985	45, 280	40, 588	42, 825	679, 480
1927	44, 756	45, 502	53, 633	57, 298	75, 535	89, 773	79, 670	68, 055	50, 055	45, 425	39, 895	39, 978	689, 575
1928	50, 095	47, 797	54, 300	52, 158	63, 582	81, 318	75, 901	64, 531	52, 481	48, 907	42, 796	43, 092	676, 958
1929	52, 490	48, 557	53, 979	56, 881	73, 879	81, 180	79, 442	64, 103	51, 972	50, 246	44, 739	46, 648	704, 116
1930	50, 875	47, 966	55, 180	59, 127	74, 504	82, 334	72, 662	52, 334	47, 744	45, 528	43, 118	51, 291	682, 663
1931	53, 340	50, 529	57, 011	62, 633	72, 275	86, 676	68, 326	52, 659	50, 083	51, 242	52, 486	55, 130	712, 390
1932	56, 775	56, 971	58, 214	57, 945	75, 553	83, 229	66, 513	60, 407	49, 935	46, 129	47, 234	50, 020	708, 925
1933	58, 293	51, 337	58, 133	55, 145	74, 617	83, 921	73, 497	73, 306	63, 018	58, 313	55, 060	56, 489	761, 129

[1] Gross weight includes container and wrapping.

Bureau of Agricultural Economics; compiled from reports of Bureau representatives in the various markets.

TABLE 402.—*Creamery butter: Cold-storage holdings,*[1] *United States, 1924–33*

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
1924	30, 299	15, 246	9, 847	7, 842	8, 913	22, 348	74, 184	134, 118	156, 440	153, 494	135, 018	100, 832
1925	65, 694	45, 748	28, 789	10, 875	3, 739	13, 036	63, 687	109, 075	128, 403	114, 172	94, 916	74, 754
1926	52, 785	39, 381	26, 313	17, 392	17, 527	30, 561	86, 897	131, 152	138, 151	125, 342	100, 871	64, 381
1927	34, 347	17, 952	7, 952	3, 044	3, 436	25, 404	89, 996	145, 147	163, 701	147, 396	118, 679	83, 224
1928	46, 289	28, 273	14, 404	5, 716	5, 109	15, 952	69, 750	120, 437	136, 175	128, 071	105, 811	70, 985
1929	43, 783	24, 747	11, 910	5, 532	5, 883	28, 369	91, 962	151, 621	168, 952	158, 541	138, 405	111, 650
1930	81, 935	60, 230	46, 530	30, 556	22, 957	50, 378	106, 522	145, 061	143, 089	131, 489	109, 646	88, 012
1931	63, 401	46, 792	30, 672	18, 010	17, 195	35, 155	89, 172	115, 121	104, 678	80, 152	56, 229	42, 242
1932	26, 643	22, 506	15, 243	9, 094	10, 394	29, 160	84, 269	110, 247	107, 259	89, 490	66, 828	37, 207
1933	22, 043	17, 833	11, 580	9, 255	9, 398	35, 159	106, 378	150, 934	175, 476	174, 713	160, 463	138, 166

[1] Quantities given are net weights.

Bureau of Agricultural Economics; compiled from reports made by cold-storage establishments.

TABLE 403.—*Butter: Receipts, gross weight,*[1] *at 5 markets, by State of origin, 1929–33*

Market and origin	1929	1930	1931	1932	1933
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
NEW YORK					
Ala	154	159	110	67	1
Ark	247	153	224	26	129
Calif	1	82	48	33	-------
Ga	39	137	120	181	2
Ill	35,738	34,307	35,186	20,198	15,778
Ind	4,890	4,799	5,106	5,494	5,633
Iowa	78,347	74,630	74,145	83,428	83,752
Kans	6,520	7,512	7,136	12,066	15,582
Ky	617	573	549	933	870
Md	196	240	15	23	-------
Mass	15	87	206	74	-------
Mich	7,555	8,802	12,691	7,317	7,666
Minn	56,333	65,883	62,081	75,812	82,537
Miss	1,070	623	795	40	572
Mo	6,573	4,345	5,582	5,856	5,850
Mont	278	337	28	-------	5
Nebr	26,803	26,825	29,877	33,197	33,871
N.J.	123	1	112	381	30
N.Y.	5,097	7,119	4,837	2,373	4,757
N.C.	429	215	55	28	9
N.Dak	2,052	2,514	5,798	5,767	4,613
Ohio	6,217	6,925	7,155	5,890	7,576
Okla	1,302	771	1,417	2,767	1,928
Pa	1,923	1,982	1,850	2,047	1,426
S.Dak	1,503	1,151	984	1,570	2,251
Tenn	2,906	2,465	1,614	1,501	815
Tex	2,304	995	930	1,877	2,318
Va	467	244	273	221	354
Wash	27	29	26	32	63
Wis	15,839	13,917	14,503	13,110	11,692
Other States	193	201	165	128	369
Canada	2	47	600	83	-------
Total	265,760	268,070	274,218	282,520	290,449
CHICAGO					
Ark	155	118	229	966	1,656
Colo	977	780	242	126	761
Idaho	8	27	-------	76	285
Ill	8,406	15,594	20,061	19,274	17,846
Ind	1,098	1,217	1,375	3,821	5,620
Iowa	44,152	39,606	42,450	35,898	46,621
Kans	11,185	9,928	15,283	20,271	25,954
Ky	2,067	1,353	989	397	1,321
Mich	854	576	877	1,551	5,924
Minn	54,043	46,380	39,550	25,534	27,362
Miss	239	143	290	352	441
Mo	13,020	12,487	14,866	16,668	18,481
Mont	235	159	3	25	60
Nebr	17,450	16,225	15,136	13,918	18,281
N.Y.	35	107	28	9	41
N.Dak	3,287	2,384	3,053	1,720	2,244
Ohio	78	251	607	128	114
Okla	3,175	3,104	4,507	6,763	6,931
S.Dak	16,187	13,496	12,855	10,666	15,045
Tenn	166	75	31	107	479
Tex	2,325	1,483	2,920	4,079	5,050
Wis	65,356	68,047	68,190	61,009	60,227
Other States	134	98	153	70	257
Canada	-------	-------	-------	-------	-------
Total	244,632	233,638	243,695	223,428	261,001
PHILADELPHIA					
Ala	26	17	103	164	-------
Ill	4,023	4,652	9,166	4,485	2,751
Ind	1,523	1,647	1,298	1,412	2,208
Iowa	6,446	6,220	6,825	8,083	10,318
PHILA.—con.					
Kans	135	70	387	729	303
Ky	130	111	365	520	778
Md	85	72	41	3	143
Mich	568	1,342	3,029	335	174
Minn	54,499	52,743	50,864	56,149	55,563
Miss	214	268	335	1,366	280
Mo	2,385	1,767	3,115	3,511	2,975
Nebr	5,038	2,824	4,083	4,333	6,292
N. Y	529	694	859	255	122
N. C	96	148	77	108	14
Ohio	1,934	1,854	1,261	1,230	962
Pa	612	626	656	624	356
S.Dak	582	215	401	736	1,030
Tenn	2,360	1,967	973	1,294	1,272
Tex	41	222	842	1,456	1,098
Va	1,289	665	990	776	1,040
W.Va	53	55	66	13	71
Wis	4,585	5,395	4,185	3,210	3,288
Other States	233	188	640	1,451	1,349
Canada	-------	-------	24	-------	-------
Total	87,386	83,762	90,585	92,243	92,387
BOSTON					
Colo	442	83	129	-------	15
Ill	11,893	12,065	13,493	12,535	12,460
Ind	3,495	2,842	2,917	2,951	2,197
Iowa	4,257	4,397	3,173	3,690	6,896
Kans	1,268	796	587	518	802
Ky	580	222	47	104	125
Mass	15	3	99	113	210
Mich	703	993	1,279	1,073	698
Minn	28,908	29,119	32,719	25,627	30,917
Mo	3,221	2,408	2,224	3,345	4,127
Mont	29	237	87	-------	-------
Nebr	12,315	7,438	4,746	4,756	4,547
N.H.	3	2	5	3	1
N.Y.	1,380	1,208	1,954	483	542
N.Dak	2,247	880	1,863	7,716	8,178
Ohio	3,214	2,942	4,267	3,614	3,297
Okla	825	540	964	1,927	1,979
Pa	192	81	250	45	-------
S.Dak	2,851	1,911	2,562	6,667	5,453
Tenn	104	119	143	-------	-------
Tex	550	251	461	460	293
Vt	781	185	154	71	126
Wis	1,679	3,292	2,885	5,853	5,242
Other States	231	441	192	433	170
Canada	-------	-------	-------	-------	-------
Total	81,183	72,455	77,200	81,984	88,275
SAN FRANCISCO					
Calif	19,070	18,110	18,473	20,510	20,483
Colo	159	93	144	159	400
Idaho	1,361	1,223	1,515	965	1,835
Mont	1,222	2,018	1,424	1,199	1,107
Nebr	81	87	37	252	61
Nev	41	184	14	26	53
Oreg	2,748	2,489	3,687	4,712	4,201
Utah	134	35	38	231	282
Wash	231	495	1,340	543	529
Other States	108	4	29	153	66
Canada	-------	-------	-------	-------	-------
Total	25,155	24,738	26,692	28,750	29,017

[1] Gross weight includes container and wrapping.

Bureau of Agricultural Economics; compiled from reports of Bureau representatives in the various markets.

TABLE 404.—*Butter: International trade, average 1925–29, annual 1929–32*

Country	Calendar year									
	Average, 1925–29		1929		1930		1931		1932 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Denmark	310, 967	1, 886	350, 616	1, 424	372, 553	1, 388	378, 423	1, 596	347, 882	923
New Zealand	156, 179	6	185, 226	1	211, 035	1	222, 719	12	244, 781	1
Australia [2]	100, 464	3, 448	102, 913	4	126, 598	4	191, 014	1	-------	--------
Netherlands	100, 310	4, 548	104, 323	4, 469	92, 393	4, 396	72, 660	8, 886	44, 922	9, 321
Russia	62, 901	0	55, 933	0	23, 197	0	68, 023	0	68, 197	0
Argentina	50, 410	7	37, 547	2	51, 156	7	51, 167	6	55, 915	6
Irish Free State	58, 409	6, 215	62, 774	4, 478	58, 766	3, 342	42, 307	3, 324	36, 931	2, 632
Sweden	37, 607	133	54, 960	24	58, 805	19	43, 045	39	29, 866	32
Finland	31, 509	42	36, 610	3	37, 726	8	38, 367	0	32, 020	0
Latvia	24, 641	0	32, 694	[2] 47	40, 630	49	41, 310	[2] 24	41, 001	1
Estonia	21, 439	6	27, 247	1	31, 010	0	31, 844	0	27, 626	0
Poland	17, 426	350	33, 248	112	26, 713	30	27, 470	32	2, 707	866
France	15, 492	6, 600	14, 945	8, 776	10, 722	12, 922	9, 765	40, 837	7, 921	26, 140
Italy	4, 043	1, 600	1, 941	1, 937	1, 851	3, 130	1, 289	6, 203	827	4, 398
Yugoslavia	571	2	635	0	655	1	668	0	339	2
Total	992, 368	24, 843	1, 101, 612	21, 278	1, 143, 810	25, 297	1, 220, 071	60, 960	940, 935	44, 322
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	1, 465	647, 350	1, 096	702, 749	1, 115	744, 623	869	863, 365	1, 238	911, 846
Germany	275	249, 016	337	298, 821	578	293, 557	269	220, 946	478	153, 262
Switzerland	155	18, 070	158	16, 650	40	18, 795	17	23, 359	7	8, 152
Canada	8, 510	14, 638	1, 400	35, 928	1, 180	38, 606	10, 680	2, 821	3, 506	238
Dutch East Indies	0	9, 758	0	11, 098	0	10, 910	0	11, 787	0	[3] 8, 922
United States	4, 558	6, 227	3, 724	2, 773	2, 954	2, 472	1, 984	1, 882	1, 605	1, 014
Belgium	2, 470	5, 856	2, 909	9, 602	2, 647	22, 630	2, 756	41, 585	1, 841	46, 778
Austria	932	2, 921	2, 211	1, 099	4, 111	544	2, 861	1, 565	1, 565	802
Union of South Africa	839	2, 420	2, 337	1, 604	2, 904	1, 690	4, 521	1, 244	4, 328	1, 110
Egypt	53	2, 341	30	2, 158	23	2, 935	78	2, 521	-------	1, 547
Algeria	48	2, 085	64	2, 465	[2] 81	[2] 4, 592	[2] 71	[2] 4, 635	-------	--------
Norway	421	1, 846	1, 191	1, 352	236	1, 529	1, 629	381	2, 429	91
British Malaya	187	1, 811	177	1, 930	193	2, 067	104	1, 863	108	1, 621
Cuba	5	1, 780	21	992	38	448	110	207	-------	--------
Peru	6	1, 708	2	1, 484	4	623	2	270	1	--------
China	0	1, 661	0	1, 372	0	1, 417	0	1, 468	0	1, 423
Greece	0	1, 251	0	1, 537	--------	1, 420	--------	2, 060	-------	1, 198
Philippine Islands	0	1, 200	0	1, 338	0	1, 188	0	1, 758	0	1, 336
Czechoslovakia	605	1, 174	716	835	694	716	661	4, 107	26	2, 703
Trinidad and Tobago	0	1, 139	0	1, 524	0	1, 058	0	1, 086	0	1, 024
Spain	328	363	177	409	160	328	88	122	45	41
Total	20, 857	974, 615	16, 550	1, 097, 720	16, 958	1, 152, 148	26, 700	1, 189, 032	17, 177	1, 143, 108

[1] Preliminary.
[2] International Yearbook of Agricultural Statistics.
[3] Java and Madura only.

Bureau of Agricultural Economics; official sources except where otherwise noted.

Butter includes all butter made from milk, malted and renovated butter, but does not include margarine or oleomargarine, cocoa butter, or ghee.

TABLE 405.—*Butter, 92-score creamery: Average wholesale price per pound, at 5 leading markets, 1921–33*

Market and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
New York:	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1921	52.52	47.23	47.97	45.60	31.88	32.77	40.40	42.83	43.10	47.04	44.98	43.81	43.34
1922	37.48	37.16	38.40	37.70	36.75	36.71	36.17	35.39	41.02	45.96	50.71	54.24	40.64
1923	51.67	49.83	49.30	46.14	41.90	38.89	39.44	44.06	45.98	47.73	52.65	54.68	46.86
1924	52.96	50.50	46.69	38.48	38.90	41.46	40.02	38.42	37.89	38.75	42.95	44.80	42.65
1925	39.94	40.82	47.51	44.54	42.58	42.49	42.86	43.45	48.18	50.88	50.66	49.20	45.26
1926	44.88	44.89	42.82	39.42	40.84	41.17	40.50	41.79	44.62	46.89	50.58	54.69	44.42
1927	49.15	51.55	50.18	50.35	43.46	42.52	41.72	41.88	46.46	48.39	49.79	51.87	47.28
1928	48.76	46.62	49.44	45.49	44.93	44.13	44.93	46.94	48.75	47.79	50.57	50.46	47.40
1929	47.94	49.89	48.45	45.35	43.54	43.54	42.42	43.45	46.22	45.56	42.70	41.10	45.01
1930	36.63	35.70	37.27	38.53	34.85	32.93	35.31	38.92	39.77	39.98	36.09	32.18	36.51
1931	28.50	28.40	28.88	26.10	23.70	23.33	24.95	28.12	32.50	33.76	30.93	30.55	28.31
1932	23.59	22.46	22.61	20.08	18.84	16.99	18.18	20.31	20.76	20.72	23.30	24.11	21.00
1933	19.85	18.65	18.17	20.66	22.54	22.84	24.53	21.31	23.60	24.04	23.60	20.08	21.66
Chicago:													
1921	48.23	46.75	46.56	43.65	29.48	31.89	39.20	40.27	41.58	44.92	44.02	43.42	41.66
1922	34.42	36.65	37.65	36.74	34.50	35.52	34.46	33.84	39.31	44.33	50.04	53.16	39.22
1923	50.19	49.96	49.33	44.73	40.46	38.80	38.32	42.95	45.68	46.92	51.52	53.46	46.03
1924	52.31	49.36	45.60	37.17	37.00	39.26	37.89	36.59	36.69	37.36	41.98	42.58	41.15
1925	38.86	40.09	47.66	42.96	40.74	42.15	42.20	41.63	46.35	49.23	49.58	47.45	44.08
1926	43.01	43.09	41.53	38.33	39.43	39.13	38.51	40.12	43.09	45.93	48.90	52.54	42.80
1927	48.08	50.41	49.36	48.13	41.49	40.42	39.98	41.45	45.03	46.23	48.23	50.51	45.78
1928	46.83	45.62	48.14	43.92	43.41	42.99	43.82	45.80	47.08	46.45	48.86	49.10	46.00
1929	46.59	49.22	47.63	44.14	42.06	42.38	41.31	42.50	44.93	43.96	41.31	39.32	43.78
1930	35.10	35.30	37.25	37.23	33.72	32.09	34.59	37.98	38.16	37.75	33.70	30.51	35.28
1931	27.35	27.15	28.69	24.37	22.37	22.30	23.85	27.19	30.26	32.18	29.75	29.15	27.05
1932	23.02	21.63	22.05	18.98	17.11	16.29	17.71	19.43	20.03	19.79	22.10	22.67	20.07
1933	18.76	17.83	17.63	19.78	21.76	22.36	23.87	20.58	22.67	23.01	22.61	18.65	20.79
San Francisco:													
1927	47.48	47.71	45.43	42.21	41.16	41.81	41.62	44.17	46.71	48.42	48.92	48.50	45.34
1928	46.36	45.20	43.41	39.88	41.70	42.98	45.62	47.59	50.26	50.92	49.20	49.74	46.08
1929	45.87	47.45	44.56	43.13	45.02	44.82	44.98	46.11	48.65	48.29	48.00	41.68	45.71
1930	36.46	37.64	37.69	38.75	36.80	34.00	33.94	37.21	38.96	37.12	34.11	33.06	36.31
1931	26.19	28.48	48.23	24.35	25.34	25.00	26.17	29.63	30.54	31.88	32.00	29.70	28.13
1932	24.44	24.00	22.87	20.00	19.48	17.92	18.88	20.74	21.00	21.88	25.65	26.85	21.98
1933	20.12	18.82	19.31	20.60	22.92	23.00	24.00	21.35	20.58	20.84	22.22	19.58	21.11
Philadelphia:													
1921	52.88	47.80	48.60	47.02	32.71	33.44	40.44	42.81	43.44	47.42	45.94	44.79	43.94
1922	37.18	36.74	38.44	37.98	37.40	37.17	36.80	36.02	41.64	46.56	51.58	55.24	41.06
1923	52.29	50.11	49.73	46.17	42.40	39.89	40.22	44.92	46.96	48.60	53.02	55.06	47.45
1924	53.27	50.98	46.82	39.04	39.71	42.00	40.72	39.15	38.86	39.35	43.00	45.46	43.20
1925	40.99	41.74	48.34	45.71	43.58	43.31	43.79	44.29	48.96	52.15	51.81	50.02	46.22
1926	45.50	45.30	43.10	40.19	41.78	42.08	41.35	42.75	45.62	47.88	51.54	55.68	45.23
1927	50.04	52.09	51.13	51.29	44.29	43.21	42.64	42.91	47.46	49.39	50.72	52.87	48.17
1928	49.74	47.59	50.36	46.48	45.92	45.18	45.94	48.05	49.75	48.73	51.55	51.47	48.39
1929	48.69	50.51	49.22	46.34	44.54	44.55	43.42	44.45	47.22	46.56	43.78	42.10	45.95
1930	37.66	36.48	38.10	39.53	35.87	33.94	36.32	39.92	40.78	40.96	37.11	33.17	37.49
1931	29.50	29.40	29.88	27.09	24.70	24.33	25.96	29.11	33.50	34.76	31.93	31.58	29.31
1932	24.64	23.43	23.63	21.05	19.84	17.99	19.18	21.31	21.77	21.73	24.30	25.11	22.00
1933	20.88	19.65	19.09	21.62	23.51	23.59	25.51	22.29	24.60	25.04	24.40	20.85	22.59
Boston:													
1921	52.46	47.52	48.04	46.42	32.37	33.68	41.40	43.40	43.42	46.36	44.81	44.04	43.66
1922	37.20	36.85	38.93	38.00	37.23	37.24	36.82	36.11	40.48	45.60	49.66	53.88	40.67
1923	52.44	50.35	51.11	47.12	42.88	39.98	39.70	44.05	46.44	47.81	51.36	53.44	47.22
1924	53.35	51.67	47.60	39.43	39.19	41.52	40.17	38.60	38.32	38.37	41.60	44.17	42.83
1925	40.69	41.11	47.42	45.30	42.98	43.26	43.54	43.98	47.88	50.60	50.27	49.16	45.52
1926	45.25	45.38	43.26	39.96	41.16	41.56	40.88	41.87	44.72	46.54	48.38	53.69	44.39
1927	49.53	51.86	50.95	51.08	43.76	52.62	41.80	42.06	46.24	47.80	48.02	49.84	47.13
1928	48.62	46.93	49.62	46.00	45.38	44.47	45.32	47.12	48.73	47.96	50.15	50.24	47.54
1929	47.87	49.98	48.85	46.22	44.02	44.06	42.77	43.98	46.47	45.69	42.85	41.36	45.34
1930	37.08	36.48	37.82	39.04	35.42	33.38	35.73	39.38	39.94	39.96	36.17	32.56	36.91
1931	29.10	28.91	29.38	26.73	24.30	23.97	25.48	28.27	32.50	34.15	31.41	31.00	28.77
1932	24.41	23.33	23.19	20.65	19.15	17.64	19.02	20.77	21.25	21.21	23.75	24.71	21.59
1933	20.54	19.28	19.12	21.50	23.25	23.78	25.54	22.27	24.06	24.88	24.56	20.91	22.47

Bureau of Agricultural Economics. Compiled from reports of Bureau representatives in the markets. These wholesale prices are based on open-market sales for cash or short-time credit, consideration being given to the prices at which the larger quantities are sold.

TABLE 406.—*Butter, creamery: Average wholesale*[1] *price per pound, all scores, by months, New York and Chicago, 1933*

Month	93	92	91	90	89	88	87	86	Centralizer car lots		
									90	89	88
NEW YORK											
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
January	20.76	19.84	19.62	19.43	19.09	17.75			18.46	18.00	17.75
February	19.61	18.65	18.49	18.42					18.42		
March	19.15	18.17	17.98	17.98					17.99		
April	21.44	20.66	20.58	20.58					20.58		
May	23.32	22.54	22.32	22.19	21.31	20.94	20.92		22.17		
June	23.69	22.84	22.44	22.00	21.50	20.87	20.19		22.02		
July	25.51	24.53	24.08	23.56	23.12	22.63	22.00		23.56	22.67	
August	22.31	21.31	20.82	20.27	19.58	18.95	18.18		20.27	19.58	
September	24.43	23.60	22.40	20.98	19.87	18.83	18.28		20.98	19.85	18.67
October	24.82	24.04	23.04	21.73	19.96	18.61	17.93		21.73	19.93	18.61
November	24.35	23.60	22.84	22.00	20.48	19.42	18.50		22.00	20.48	19.42
December	20.89	20.14	19.63	19.10	18.13	17.41	16.71		19.10	18.10	17.40
Average	22.52	21.66	21.19	20.69	20.34	19.49	19.09		20.61	19.80	18.37
CHICAGO											
January	19.51	18.76	18.50	18.30	18.03	20.25			18.78	18.18	
February	18.58	17.83	17.55	17.39	17.16				17.89	17.34	
March	18.36	17.63	17.32	17.30	16.90				17.73	17.26	
April	20.53	19.78	19.51	19.47	19.22				19.95	19.43	
May	22.51	21.76	21.36	21.13	20.82	20.34	19.50		21.84	21.04	20.46
June	23.11	22.36	21.80	21.25	20.39	19.51	18.55		22.31	21.21	20.54
July	24.61	23.87	23.38	22.68	22.12	21.37	20.54		23.81	22.69	21.59
August	21.33	20.58	20.04	19.45	18.73	17.88	17.28		20.15	19.01	17.87
September	23.41	22.67	21.56	20.47	18.55	17.78	17.15		21.24	19.35	18.16
October	23.75	23.01	21.98	20.51	19.32	18.08	17.20		21.03	19.41	18.28
November	23.28	22.61	21.48	20.74	19.75	18.23	17.54		21.15	19.79	18.29
December	19.27	18.61	17.75	17.30	16.76	15.51	14.98		17.84	17.05	15.45
Average	21.52	20.79	20.19	19.67	18.98	18.77	17.84		20.31	19.31	18.83

[1] Principally sales by first-hand receivers to jobbers, chain stores, or other large distributors, in less than carload lots, except as otherwise indicated.

Bureau of Agricultural Economics.

TABLE 407.—*Butter: Average export price per pound in Copenhagen, Denmark, 1924–33*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924	40.0	39.5	36.9	31.3	36.4	33.4	37.8	41.1	42.3	46.1	44.2	46.8	39.7
1925	42.0	45.4	46.1	40.6	36.9	39.4	40.5	44.2	45.7	46.5	44.6	37.8	42.5
1926	36.5	40.2	38.8	36.2	34.8	35.7	35.4	36.1	36.6	36.3	34.9	37.1	36.6
1927	36.4	39.3	36.8	35.2	32.9	33.2	32.2	35.0	39.6	39.4	41.2	38.0	36.6
1928	35.4	37.5	40.0	36.8	35.4	34.9	36.4	38.0	40.2	39.5	40.6	42.4	38.1
1929	39.1	39.0	35.5	32.8	33.4	34.9	35.3	35.6	39.7	40.5	38.7	35.8	36.7
1930	34.8	35.3	31.7	27.4	26.3	27.7	30.3	29.2	29.9	30.1	27.2	27.3	29.8
1931	26.4	29.5	27.0	24.3	23.3	23.3	23.2	24.5	24.2	21.2	19.6	18.8	23.8
1932	16.7	19.8	16.3	15.6	13.6	13.2	14.8	14.0	15.7	14.7	14.5	13.7	15.2
1933	12.2	12.3	11.0	10.8	11.9	12.2	14.8	16.2	19.0	18.1	21.0	19.1	14.9

Bureau of Agricultural Economics. Compiled from Danish Butter Journal (Smor Tidende) official quotations in kroner per 100 kilograms, as fixed each Thursday by 2 committees, representing dairy and commercial interests respectively. For earlier years 1882–1923 see the U.S. Department of Agriculture Yearbook, 1923, and subsequent issues. Converted at monthly average rates of exchange as given in Federal Reserve Bulletin, except for period January 1927–August 1931, when par of exchange was used.

TABLE 408.—*Cheese, whole milk American Cheddar: Production in factories, United States, 1923–32*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
1923	15, 092	15, 326	20, 184	24, 014	32, 942	41, 382	38, 288	31, 822	28, 648	25, 566	18, 236	16, 608	308, 108
1924	17, 718	18, 886	22, 955	24, 597	33, 657	43, 517	40, 716	33, 602	30, 539	26, 210	17, 252	15, 046	324, 695
1925	16, 834	17, 991	21, 598	26, 889	38, 012	45, 782	43, 706	37, 659	31, 548	28, 253	20, 349	18, 619	347, 240
1926	19, 519	19, 984	25, 216	29, 221	38, 598	46, 320	40, 164	33, 239	28, 809	23, 164	16, 386	15, 295	335, 915
1927	16, 660	17, 085	21, 318	24, 533	34, 704	41, 489	38, 195	31, 944	25, 783	23, 012	16, 717	16, 337	307, 777
1928	18, 010	19, 005	23, 451	28, 221	37, 324	45, 012	40, 072	34, 229	30, 342	25, 134	18, 013	16, 440	335, 253
1929	19, 925	19, 522	24, 059	30, 181	42, 483	51, 702	48, 007	37, 811	30, 824	25, 961	19, 655	20, 184	370, 314
1930	23, 666	23, 031	28, 502	34, 143	48, 545	53, 887	45, 582	33, 555	26, 705	23, 581	18, 781	18, 838	378, 816
1931	21, 941	22, 018	27, 571	32, 940	44, 439	49, 513	40, 595	32, 956	29, 139	30, 470	23, 016	20, 050	374, 648
1932	20, 895	21, 993	25, 484	29, 706	41, 933	48, 534	40, 205	34, 796	31, 510	29, 267	23, 601	22, 819	370, 743

Bureau of Agricultural Economics. Compiled from reports of factories made direct to the Bureau. Figures beginning with the year 1929 are the most complete since these reports were inaugurated in 1918. Some allowance, therefore, should be made for this when comparing production since 1929 with that of previous years.

TABLE 409.—*Cheese, whole-milk American Cheddar: Production in factories, by States, average 1926–30, annual 1931 and 1932*

State	Average, 1926–30	1931	1932	State	Average, 1926–30	1931	1932
	1,000 lb.	*1,000 lb.*	*1,000 lb.*		*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
Vermont	892	201	132	South Atlantic	650	623	845
Other New England States	106	83	76				
New England	998	284	208	Tennessee	1, 190	2, 347	2, 386
				Others	3, 368	6, 968	8, 523
New York	28, 592	26, 299	22, 586	East South Central	4, 558	9, 315	10, 909
New Jersey	61						
Pennsylvania	1, 724	1, 722	1, 301	West South Central	1, 794	5, 965	11, 363
Middle Atlantic	30, 377	28, 021	23, 887	Wyoming	2, 224	1, 596	1, 514
				Idaho	7, 753	4, 855	6, 087
Ohio	725	1, 156	1, 355	Utah	2, 461	3, 083	3, 156
Indiana	5, 210	13, 731	14, 417	Montana	1, 741	1, 605	1, 886
Illinois	4, 200	4, 390	8, 529	Others	2, 239	2, 283	2, 171
Michigan	7, 110	6, 662	6, 495				
Wisconsin	237, 247	243, 109	227, 751	Mountain	16, 418	13, 422	14, 814
East North Central	254, 492	269, 048	258, 547	Washington	3, 901	5, 284	7, 783
				Oregon	12, 262	15, 777	15, 532
Minnesota	9, 154	8, 432	7, 578	California	3, 923	7, 117	8, 130
Iowa	668	1, 060	1, 016				
Missouri	2, 173	3, 344	3, 551	Pacific	20, 086	28, 178	31, 445
Others	4, 247	6, 956	6, 580				
				Total	345, 615	374, 648	370, 743
West North Central	16, 242	19, 792	18, 725				

Bureau of Agricultural Economics. The compilations are made from reports of factories to the Bureau.

TABLE 410.—*Cheese: Receipts, gross weight,*[1] *at 5 markets, 1919–33*

Year	New York	Chicago	Philadelphia	Boston	San Francisco	Year	New York	Chicago	Philadelphia	Boston	San Francisco
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*		*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
1919	65, 045	81, 019	21, 392	17, 722	12, 089	1927	46, 937	123, 633	20, 396	14, 588	12, 694
1920	47, 004	81, 597	16, 866	12, 997	10, 203	1928	48, 272	97, 264	21, 039	17, 362	12, 676
1921	51, 981	85, 849	20, 952	13, 208	9, 632	1929	50, 911	80, 823	19, 973	14, 899	12, 293
1922	50, 109	107, 724	19, 324	13, 521	9, 157	1930	52, 165	58, 866	21, 167	16, 882	15, 119
1923	49, 425	123, 645	18, 363	15, 914	11, 690	1931	56, 005	41, 555	20, 949	17, 240	12, 907
1924	42, 959	130, 024	16, 866	13, 725	11, 482	1932	61, 195	42, 804	22, 081	16, 593	14, 349
1925	46, 163	131, 129	19, 095	15, 314	11, 855	1933	59, 850	36, 889	23, 280	17, 680	14, 506
1926	45, 363	115, 104	19, 454	15, 437	12, 530						

[1] Gross weight includes container and wrapping.

Bureau of Agricultural Economics; compiled from reports of Bureau representatives in the various markets.

TABLE 411.—*Cheese: Receipts, gross weight,*[1] *at 5 markets, by months, 1931–33, and total, 1924–33*

Market and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
New York:													
1931	4,183	3,887	4,395	3,889	4,315	7,099	5,083	5,281	4,545	5,409	4,207	3,712	56,005
1932	4,996	5,158	4,611	3,945	5,134	5,702	6,590	5,850	4,626	4,887	4,902	4,794	61,195
1933	4,338	4,106	5,041	4,904	6,509	5,209	6,589	4,728	4,760	5,027	4,088	4,551	59,850
Chicago:													
1931	4,163	3,087	3,656	3,396	3,220	3,898	4,380	4,153	3,007	3,307	2,932	2,356	41,555
1932	3,177	3,284	3,178	3,201	3,723	4,061	3,942	4,065	3,635	4,230	3,170	3,138	42,804
1933	2,959	2,663	3,222	3,235	3,603	3,818	3,483	2,985	2,611	2,949	2,623	2,738	36,889
Philadelphia:													
1931	1,307	1,538	1,639	1,564	1,935	2,530	1,707	2,225	1,791	2,045	1,334	1,334	20,949
1932	1,434	1,629	1,521	1,618	2,221	2,498	1,973	2,094	1,969	1,590	2,134	1,400	22,081
1933	1,566	1,518	2,250	2,267	2,840	2,009	2,208	1,909	1,728	1,974	1,729	1,282	23,280
Boston:													
1931	1,213	1,144	1,155	1,438	1,432	2,427	1,552	1,404	1,734	1,673	1,116	952	17,240
1932	1,045	1,142	1,286	1,093	1,241	1,881	2,013	1,477	1,495	1,263	1,294	1,363	16,593
1933	1,097	975	1,306	1,113	1,425	1,633	2,354	1,392	1,892	1,706	1,558	1,229	17,680
San Francisco:													
1931	734	750	872	1,158	1,243	1,526	1,468	1,201	871	1,154	980	950	12,907
1932	710	862	1,163	908	1,653	1,588	1,974	1,369	1,046	1,359	1,005	712	14,349
1933	808	720	906	1,210	1,659	1,320	2,289	1,642	1,180	1,053	773	946	14,506
Total:													
1924	13,899	16,092	16,540	16,175	19,030	22,041	25,143	19,996	18,855	17,479	14,884	14,922	215,056
1925	15,202	12,845	14,898	15,436	18,529	24,025	25,825	24,176	20,520	21,029	17,059	14,012	223,556
1926	14,853	13,568	15,055	15,531	14,972	21,777	21,973	20,736	18,784	18,699	15,954	15,986	207,888
1927	12,707	14,916	14,956	16,922	21,301	22,134	24,134	22,556	21,522	18,996	14,278	13,826	218,248
1928	14,409	13,715	14,654	15,139	16,253	19,216	21,741	18,728	18,222	18,665	14,179	11,692	196,613
1929	13,781	13,877	12,261	12,331	16,750	18,406	20,548	18,605	15,289	14,343	11,829	10,879	178,899
1930	12,526	12,466	12,904	13,026	15,473	17,895	17,435	14,953	14,510	12,225	10,783	10,003	164,199
1931	11,600	10,406	11,717	11,445	12,145	17,480	14,190	14,264	11,948	13,588	10,569	9,304	148,656
1932	11,362	12,075	11,759	10,765	13,972	15,730	16,492	14,855	12,771	13,329	12,505	11,407	157,022
1933	10,768	9,982	12,725	12,729	16,036	13,989	16,923	12,656	12,171	12,709	10,771	10,746	152,205

[1] Gross weight includes container and wrapping.

Bureau of Agricultural Economics; compiled from reports of Bureau representatives in the various markets.

See 1927 Yearbook, p. 1084, and 1931 Yearbook, p. 924, for data for earlier years.

TABLE 412.—*Cheese, American, and all varieties: Cold-storage holdings,*[1] *United States, 1924–33*

AMERICAN [2]

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
1924	49,566	40,506	35,160	28,294	26,202	27,172	45,239	65,864	76,406	73,153	67,905	58,705
1925	49,187	41,552	34,647	27,716	26,147	29,550	46,468	66,634	76,512	78,582	71,913	66,495
1926	58,457	50,339	42,587	38,041	35,597	39,346	54,069	73,681	81,297	77,646	72,491	63,881
1927	56,758	48,106	41,383	37,188	34,332	37,710	52,085	69,119	71,825	67,402	60,766	55,140
1928	49,914	43,837	38,189	33,294	32,177	39,203	56,386	75,862	86,632	84,745	85,126	77,258
1929	71,177	60,772	52,665	48,175	44,983	50,721	66,640	83,914	90,863	89,797	83,737	76,669
1930	68,930	58,972	53,208	46,507	43,239	53,403	74,986	93,773	92,063	90,152	83,674	75,736
1931	67,599	58,516	52,304	45,277	44,792	46,764	63,156	73,693	73,740	70,940	69,611	66,053
1932	60,804	54,360	47,106	42,009	38,951	40,461	53,922	63,667	66,721	68,555	66,813	62,392
1933	57,749	53,532	46,992	41,625	37,321	41,336	67,456	82,771	94,394	99,326	95,831	85,146

ALL VARIETIES

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1924	67,221	57,232	50,388	42,413	40,235	42,644	61,755	84,073	95,211	91,282	88,043	77,594
1925	67,558	58,461	50,117	40,480	39,037	42,888	61,992	83,568	95,472	97,777	90,866	84,561
1926	76,649	67,531	58,175	51,285	47,450	52,167	68,771	90,053	98,473	95,385	89,785	81,084
1927	74,217	64,216	56,073	49,835	47,461	52,748	69,302	89,965	92,280	87,080	79,334	72,428
1928	66,184	57,906	50,263	44,710	43,761	51,477	71,353	92,482	104,224	101,251	100,229	92,903
1929	88,832	77,024	67,087	61,223	57,569	64,177	83,627	102,077	110,314	107,831	100,558	92,553
1930	86,075	74,523	67,281	59,928	56,940	72,358	95,221	113,923	112,061	108,767	101,148	91,775
1931	83,288	73,488	66,177	57,711	57,422	60,242	77,989	89,264	91,284	88,564	87,386	84,035
1932	78,318	70,682	60,962	54,021	50,764	52,118	66,531	76,327	79,847	81,406	78,274	73,916
1933	68,714	63,321	55,731	48,806	43,626	48,481	78,715	94,291	108,035	113,131	109,655	99,009

[1] Quantities given are net weight.
[2] The term "American cheese" is intended to cover only those varieties known as twins, flats, daisies, Cheddars, longhorns, and square prints. It does not, therefore, include all kinds of cheese made in America.

Bureau of Agricultural Economics; compiled from reports made by cold-storage establishments.
Changes in these tables made due to transference of current trading stocks to cold-storage stocks from Jan. 1, 1927, to Dec. 1, 1931.

TABLE 413.—*Cheese: Receipts, gross weight,*[1] *at 5 markets, by State of origin, 1929–33*

Market and origin	1929	1930	1931	1932	1933
NEW YORK	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
Ill.	4,497	6,145	7,288	9,196	10,957
Ind.	1,585	1,084	1,539	1,074	770
Iowa	82	84	26	122	85
Mass.	365	93	68	22	22
Mich.	937	844	704	1,377	1,366
Minn.	188	329	266	285	1,100
Mo.	7	13	30	94	132
Nebr.	52	45	115	63	78
N.J.	69	69	8	3	15
N.Y.	11,252	10,866	8,294	7,289	5,782
Ohio	678	617	576	592	466
Pa.	588	466	146	100	92
Vt.	33	43	(2)	6	43
Va.	220	1	(2)	(2)	184
Wis.	27,068	28,835	35,456	40,657	37,806
Other States	372	204	78	87	443
Canada	2,918	2,427	1,411	228	509
Total	50,911	52,165	56,005	61,195	59,850
BOSTON					
Ill.	1,754	1,387	1,404	784	691
Ind.	161	382	348	216	40
Maine	1	(2)	(2)	1	(1)
Mass.	37	38	25	2	(1)
Mich.	322	132	396	273	352
N.H.	1	5	1	12	(1)
N.Y.	2,847	2,349	2,310	2,226	3,024
Ohio	6	12	76	33	11
Pa.	10	60	1	2	-------
Vt.	34	113	54	53	131
Wis.	9,260	9,492	11,746	12,825	13,074
Other States	407	2,910	876	163	356
Canada	59	2	3	3	1
Total	14,899	16,882	17,240	16,593	17,680
PHILADELPHIA					
Ill.	3,075	2,091	1,880	2,512	2,462
Ind.	137	34	146	4	1
Iowa	4	4	3	5	6
Mich.	539	655	668	75	777
Minn.	23	34	285	799	936
N.Y.	2,145	2,231	1,688	979	974
N.Dak.	-------	-------	-------	2	-------
Ohio	52	1	10	66	22
Pa.	57	91	87	51	22
PHILADELPHIA—con.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
Wis.	13,825	15,966	15,945	17,588	18,078
Other States	41	60	237	-------	2
Canada	75	-------	-------	-------	-------
Total	19,973	21,167	20,949	22,081	23,280
CHICAGO					
Calif.	56	37	45	2	2
Colo.	197	22	12	10	23
Ill.	1,994	1,853	943	4,213	3,658
Ind.	296	396	139	41	100
Iowa	278	98	76	43	61
Kans.	35	39	27	4	40
Mich.	192	246	49	93	92
Minn.	2,999	1,751	1,132	733	1,351
Mo.	181	24	20	33	111
Mont.	1	10	1	-------	-------
N.J.	780	319	879	156	82
N.Y.	4,652	2,857	1,323	3,203	2,571
Ohio	111	136	9	46	51
Pa.	230	60	23	55	22
S.Dak.	29	16	28	19	76
Tex.	6	5	59	31	3
Wis.	67,495	49,447	36,424	33,796	28,267
Other States	685	683	333	326	248
Canada	606	867	33	-------	131
Total	80,823	58,866	41,555	42,804	36,889
SAN FRANCISCO					
Calif.	3,449	4,213	3,110	3,233	3,489
Colo.	179	165	129	81	115
Idaho	3,303	3,413	2,907	1,781	2,203
Ill.	3	221	(2)	33	71
Mont.	3	1	-------	-------	(1)
N.Y.	734	784	687	337	400
Oreg.	3,374	5,427	5,093	6,568	5,524
Utah	59	28	-------	9	38
Wash.	17	13	34	94	69
Wis.	1,136	759	904	2,210	2,542
Other States	36	95	43	3	55
Total	12,293	15,119	12,907	14,349	14,506

[1] Gross weight includes container and wrapping. [2] Not over 500 pounds.

Bureau of Agricultural Economics; compiled from reports of Bureau representatives in the various markets.

TABLE 414.—*Cheese, No. 1 American, fresh single daisies: Average wholesale price per pound, New York, by months, 1924–33*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924	24	24	23	20	19	20	20	21	21	21	21	22	21
1925	24	24	24	24	24	24	24	24	24	25	[1] 25	25	24
1926	26	25	23	21	21	21	22	22	23	24	25	26	23
1927	26	26	25	24	24	24	24	25	27	28	27	29	26
1928	-----	[1] 25	25	24	24	26	26	26	27	26	25	25	[2] 25
1929	25	24	24	24	23	23	23	23	24	24	24	23	24
1930	21	21	21	21	20	18	18	19	20	19	19	18	20
1931	17	16	16	15	14	14	15	16	17	16	15	14	15
1932	13	13	13	12	12	11	12	14	14	13	13	13	13
1933	12	11	11	12	15	15	15	14	13	13	13	12	13

[1] Less than 10 quotations during month.
[2] Based on 11 months' quotations.

Bureau of Agricultural Economics; compiled from reports of Bureau representatives in the market.
These wholesale prices are based upon open market sales made for cash or short-time credit, consideration being given to the prices at which the larger quantities are sold.

TABLE 415.—*Cheese: International trade, average 1925–29, annual 1929–32*

Country	Calendar year: Average, 1925–29 Exports	Average, 1925–29 Imports	1929 Exports	1929 Imports	1930 Exports	1930 Imports	1931 Exports	1931 Imports	1932 [1] Exports	1932 [1] Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
Netherlands	198,043	1,292	211,234	1,445	206,735	1,509	190,457	1,346	170,059	1,075
New Zealand	171,975	4	199,258	6	203,054	7	183,271	5	200,528	2
Canada	120,606	3,419	92,946	2,104	80,164	1,788	84,788	1,446	86,940	1,167
Italy	76,435	9,818	72,454	13,975	80,973	12,562	89,045	10,115	66,397	8,806
Switzerland	64,236	3,538	69,726	3,437	66,143	4,238	54,305	8,470	43,700	4,756
Denmark	14,740	972	14,513	647	12,626	808	9,383	603	14,535	129
Czechoslovakia	7,843	2,450	7,052	3,348	8,274	2,961	10,980	3,781	6,124	3,071
Australia [2]	6,724	1,212	5,131	548	7,263	154	7,412	24	-------	-------
Finland	5,951	42	4,836	44	4,682	35	5,777	34	7,225	26
Yugoslavia	4,787	318	4,937	370	4,583	297	4,197	243	2,616	150
Bulgaria	2,150	18	2,642	11	2,466	5	3,141	5	2,601	-------
Hungary	1,870	1,720	1,703	1,536	1,846	955	920	496	694	66
Russia	[2] 1,390	[2] 110	[2] 3,091	[2] 0	697	0	110	0	123	0
Total	676,750	24,913	689,523	27,471	679,506	25,319	643,786	26,568	601,542	19,248
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	4,509	331,101	6,388	331,744	5,579	345,227	4,047	319,916	4,011	333,502
Germany	3,311	149,025	4,919	146,569	5,411	137,458	7,372	120,403	4,237	108,686
United States	4,350	75,680	2,645	76,382	1,964	68,311	1,673	61,991	1,408	55,623
Belgium	1,173	38,709	892	46,399	875	52,049	813	49,590	554	45,660
France	31,257	37,037	34,110	42,899	32,694	55,036	28,824	69,560	29,210	52,267
Algeria	220	7,496	193	8,449	212	10,464	216	11,346	187	11,100
Spain	89	7,109	67	6,970	207	5,835	237	3,866	239	2,481
Austria	1,769	7,056	2,936	5,716	4,493	5,636	6,235	5,794	3,981	3,732
Egypt	152	6,870	195	6,526	121	7,494	129	7,311	254	5,254
Cuba	5	4,764	6	4,484	10	2,867	7	1,378	-------	-------
Greece	40	3,942	356	3,317	[2] 301	2,301	[2] 189	3,959	-------	1,754
Argentina	861	3,681	796	4,001	744	3,777	1,055	1,659	1,470	470
Irish Free State	271	2,567	124	2,409	169	2,350	174	2,689	-------	2,226
Dutch East Indies	0	1,881	0	2,347	0	2,161	0	2,107	0	[3] 1,643
Mexico	126	1,808	[2] 135	1,744	[2] 56	1,230	23	-------	-------	-------
Brazil	0	1,472	0	1,555	0	1,246	1	575	0	363
Sweden	474	1,405	263	1,413	550	1,473	102	1,691	258	1,044
Tunis	21	1,347	13	1,683	28	1,764	24	1,943	14	2,070
British India	6	1,231	7	1,257	7	1,148	6	899	4	969
Norway	925	1,191	1,347	841	1,380	749	2,905	562	3,644	240
Union of South Africa	342	530	404	669	1,954	450	2,186	303	2,364	379
Total	49,901	685,902	55,796	697,374	56,755	709,026	56,218	667,542	51,835	629,463

[1] Preliminary. [2] International Yearbook of Agricultural Statistics. [3] Java and Madura only.

Bureau of Agricultural Economics; official sources except where otherwise noted.
All cheese made from milk, including "cottage cheese."

TABLE 416.—*Oleomargarine: Production and apparent consumption in the United States, 1924–25 to 1932–33*

Year beginning July	Production: Colored	Production: Uncolored	Production: Total	Stocks beginning of year	Exports	Stocks end of year	Apparent consumption: Total	Apparent consumption: Per capita
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*Pounds*
1924–25	11,280	204,123	215,403	2,607	887	2,720	214,403	1.87
1925–26	13,181	234,866	248,047	2,720	1,256	2,942	246,569	2.12
1926–27	14,502	242,655	257,157	2,942	942	3,299	255,858	2.17
1927–28	15,351	279,348	294,699	3,299	732	3,187	294,079	2.46
1928–29	16,306	316,816	333,122	3,187	633	4,191	331,485	2.74
1929–30	17,103	332,021	349,124	4,191	931	4,702	347,682	2.84
1930–31	8,847	268,926	277,773	4,694	604	2,494	279,369	2.26
1931–32	4,636	210,706	215,342	2,494	553	2,615	214,668	1.72
1932–33	2,813	216,230	219,043	2,615	316	2,786	218,556	1.75

Bureau of Agricultural Economics. Production and stocks from reports of the Bureau of Internal Revenue. Exports from reports of the Bureau of Foreign and Domestic Commerce. See 1927 Yearbook, p. 1088, for data for earlier years.

TABLE 417.—*Oleomargarine: Materials used in manufacture, 1923–24 to 1932–33*

Material	Year beginning July									
	1923–24	1924–25	1925–26	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Butter	1,900	1,509	2,330	2,070	2,484	2,611	2,616	1,013	39	16
Coconut oil	83,059	79,449	98,307	107,654	141,000	171,412	185,066	155,954	127,967	134,430
Coloring	26	38	41	18	19	47	21	11	5	3
Corn oil	457	196	174	183	38	--------	(1)	159	74	102
Cottonseed oil	20,640	20,966	25,608	23,372	24,801	28,173	30,214	22,037	14,874	16,031
Edible tallow	24	111	93	219	70	26	16	(1)	--------	--------
Milk	69,090	61,924	72,662	73,700	83,115	94,752	97,753	77,251	54,257	52,007
Mustard-seed oil	38	27	34	53	56	12	48	48	1	--------
Neutral lard	32,210	25,674	25,172	24,872	25,036	24,189	19,632	10,180	10,557	9,130
Oleo oil	52,265	44,102	47,418	48,741	45,477	47,185	45,322	28,040	15,315	12,457
Oleo stearine	5,317	5,250	5,314	5,145	5,532	5,834	6,269	5,485	4,337	3,283
Oleo stock	2,756	3,183	3,082	2,552	1,738	1,294	1,189	1,025	641	573
Peanut oil	5,656	4,392	5,257	4,872	5,459	6,617	5,714	5,291	3,780	2,338
Salt	20,593	18,725	20,593	21,683	25,024	27,311	28,890	22,981	14,659	12,598
Soybean oil	--------	--------	1	33	--------	--------	619	2,262	13	7
Miscellaneous	432	688	1,374	918	1,220	1,474	1,279	3,154	846	861
Total	294,463	266,234	307,460	316,085	361,069	410,937	424,648	334,891	247,365	243,836

[1] Not over 500 pounds.

Bureau of Agricultural Economics; compiled from annual reports of the Bureau of Internal Revenue.

TABLE 418.—*Oleomargarine, standard, uncolored: Average wholesale price* [1] *per pound, Chicago, by months, 1924–33*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924	22.5	22.5	21.9	20.5	20.5	20.5	21.2	22.5	22.5	23.0	24.0	24.5	22.2
1925	24.5	24.5	24.5	24.5	23.9	23.5	23.7	24.5	24.5	24.5	24.5	24.5	24.3
1926	24.5	24.3	23.5	23.3	22.5	22.5	22.5	22.5	22.5	22.5	21.8	21.5	22.8
1927	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	23.9	24.5	23.5	23.5	22.3
1928	23.5	23.5	23.5	21.5	21.5	21.5	21.5	21.5	22.0	23.5	23.5	23.5	22.5
1929	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5
1930	23.5	23.5	23.5	23.5	23.5	22.8	20.5	20.5	20.5	20.5	20.5	19.0	21.8
1931	17.7	15.5	14.5	14.5	12.8	11.0	10.6	10.5	11.9	12.7	13.3	13.4	13.3
1932	12.8	9.8	9.5	9.5	9.5	9.5	9.1	9.3	9.5	9.5	9.5	9.5	9.7
1933	9.5	8.0	7.7	8.1	9.4	9.5	9.5	9.5	9.5	9.4	7.8	7.0	8.7

[1] These prices are for consignment to the wholesale trade.

Bureau of Agricultural Economics; compiled from Bureau of Labor Statistics Wholesale Price Bulletins.

TABLE 419.—*Chickens: Number on hand Jan. 1 and value, United States, 1925–34*

Year	Number	Value per head	Total value	Year	Number	Value per head	Total value
	Thousands	*Cents*	*1,000 dollars*		*Thousands*	*Cents*	*1,000 dollars*
1925 [1]	*409,291*	*92.6*	*379,011*	*1930* [1]	*378,878*	*84.9*	*321,625*
1925	417,755	79.3	331,203	1930	469,955	92.8	436,272
1926	424,514	88.5	375,718	1931	460,489	70.4	324,405
1927	450,585	90.7	408,525	1932	451,219	61.7	278,211
1928	467,174	85.8	401,004	1933	461,646	45.1	208,117
1929	445,806	91.1	406,164	1934	454,629	42.2	191,633

[1] Census report.

Bureau of Agricultural Economics.

TABLE 420.—*Chickens: Estimated number on farms and value per head, by States, Jan. 1, 1931–34*

State and division	Number of chickens Jan. 1				Value per head			
	1931	1932	1933	1934	1931	1932	1933	1934
	Thous.	*Thous.*	*Thous.*	*Thous.*	*Cents*	*Cents*	*Cents*	*Cents*
Maine	1,800	1,780	1,900	1,931	125	110	88	85
New Hampshire	1,110	1,090	1,160	1,214	130	120	95	90
Vermont	855	827	868	865	115	105	88	77
Massachusetts	2,245	2,190	2,215	2,233	140	125	105	100
Rhode Island	359	350	374	374	135	125	105	102
Connecticut	1,835	1,960	2,015	2,092	120	105	90	86
New York	14,200	14,340	14,765	15,252	103	97	81	74
New Jersey	5,080	5,525	5,840	5,755	125	112	94	91
Pennsylvania	19,380	18,900	19,830	19,858	98	93	68	67
North Atlantic	46,864	46,962	48,967	49,574	107.7	100.2	79.7	75.9
Ohio	21,795	21,375	22,895	22,665	75	67	47	45
Indiana	17,480	17,200	17,830	17,564	71	64	45	40
Illinois	26,780	26,020	26,870	26,523	73	63	45	40
Michigan	11,650	12,295	12,835	12,903	81	71	50	45
Wisconsin	15,610	14,800	14,930	15,851	72	61	47	40
East North Central	93,315	91,690	95,360	95,506	73.9	64.9	46.5	41.9
Minnesota	19,040	19,170	19,160	18,727	63	51	35	30
Iowa	35,030	34,150	33,875	35,335	66	56	43	37
Missouri	28,420	27,170	28,320	27,146	60	54	36	31
North Dakota	5,250	4,830	5,005	4,844	52	47	32	28
South Dakota	10,060	9,125	9,490	8,707	57	51	34	28
Nebraska	16,990	15,810	15,980	16,806	57	47	34	30
Kansas	22,410	21,590	21,785	22,102	54	46	34	29
West North Central	137,200	131,845	133,615	133,667	60.1	51.5	36.8	31.7
North Central	230,515	223,535	228,975	229,173	65.7	57.0	40.8	35.9
Delaware	2,000	1,970	1,745	1,635	90	82	59	88
Maryland	4,925	5,225	5,345	5,135	90	78	57	55
Virginia	9,420	9,720	10,365	9,694	72	68	45	47
West Virginia	4,230	3,965	4,220	4,067	71	63	47	47
North Carolina	8,670	8,960	9,560	9,136	70	59	39	44
South Carolina	4,185	4,060	4,270	4,022	71	57	45	49
Georgia	7,710	7,935	7,795	7,657	64	52	40	41
Florida	2,670	2,785	2,745	2,504	85	70	58	57
South Atlantic	43,810	44,620	46,045	43,850	73.6	63.8	45.8	47.8
Kentucky	10,690	10,425	11,085	10,948	60	54	35	33
Tennessee	11,225	10,880	11,775	11,192	57	51	33	32
Alabama	7,640	7,545	7,840	7,466	54	44	35	37
Mississippi	7,215	7,420	7,625	6,609	57	47	35	37
Arkansas	7,480	8,170	8,820	7,938	47	43	30	28
Louisiana	5,170	5,075	4,944	5,007	63	57	38	40
Oklahoma	13,540	13,085	14,100	12,689	54	48	30	27
Texas	26,320	26,830	27,680	25,958	56	47	32	33
South Central	89,280	89,430	93,869	87,807	55.9	48.4	32.8	32.6
Montana	2,400	2,190	2,260	2,266	60	53	42	38
Idaho	2,740	2,650	2,450	2,491	62	52	40	39
Wyoming	885	870	840	851	68	53	44	39
Colorado	4,440	4,110	4,000	4,098	63	52	34	34
New Mexico	1,135	1,145	1,240	1,179	62	59	41	36
Arizona	770	760	810	790	86	71	63	57
Utah	3,036	2,795	2,390	2,669	70	53	46	44
Nevada	344	327	253	285	90	62	60	59
Washington	7,915	7,620	7,645	7,613	70	65	55	49
Oregon	3,455	3,565	3,292	3,262	80	72	53	53
California	22,900	20,640	18,610	18,721	95	80	64	58
Western	50,020	46,672	43,790	44,225	80.8	68.7	54.3	49.9
United States	460,489	451,219	461,646	454,629	70.4	61.7	45.1	42.2

Bureau of Agricultural Economics.

TABLE 421.—*Chickens: Number raised and value per head, by States, 1930–33*

State and division	Number raised				Value per head			
	1930	1931	1932	1933	1930	1931	1932	1933
	Thous.	*Thous.*	*Thous.*	*Thous.*	*Cents*	*Cents*	*Cents*	*Cents*
Maine	3,400	3,380	3,650	3,796	97	89	69	59
New Hampshire	2,540	2,640	2,640	3,010	95	87	68	55
Vermont	1,350	1,380	1,520	1,672	94	84	64	57
Massachusetts	4,830	5,120	5,530	5,862	93	87	66	57
Rhode Island	640	640	685	712	104	95	78	66
Connecticut	3,615	3,795	3,795	4,175	104	90	74	58
New York	19,520	18,555	21,336	22,616	80	72	59	50
New Jersey	6,800	7,480	7,855	7,855	102	96	76	68
Pennsylvania	24,610	23,640	24,800	24,800	84	78	62	50
North Atlantic	67,305	66,630	71,811	74,498	87.8	80.9	64.4	53.9
Ohio	31,275	29,710	32,085	33,370	71	62	44	37
Indiana	29,340	27,280	29,190	29,482	67	60	45	36
Illinois	36,600	35,140	37,250	37,622	71	64	46	37
Michigan	18,510	18,510	18,880	20,579	72	60	45	37
Wisconsin	21,756	20,016	19,610	22,747	62	56	38	34
East North Central	137,481	130,656	137,015	143,800	68.9	60.9	44.0	36.3
Minnesota	27,790	27,790	27,235	28,324	60	52	35	28
Iowa	47,250	45,830	44,455	50,234	68	62	43	34
Missouri	38,340	34,890	39,430	37,853	59	52	36	27
North Dakota	7,359	6,990	6,920	7,335	50	45	32	26
South Dakota	13,190	13,085	13,085	13,870	60	52	36	28
Nebraska	24,676	22,950	23,640	26,004	57	51	37	27
Kansas	33,310	31,645	33,225	35,883	55	48	34	24
West North Central	191,915	183,180	187,990	199,503	60.1	53.4	37.1	28.4
North Central	329,396	313,836	325,005	343,303	63.8	56.5	40.0	31.7
Delaware	3,280	2,950	2,655	2,525	77	67	49	43
Maryland	7,050	7,050	7,755	7,042	78	72	51	45
Virginia	16,390	16,550	19,030	16,746	58	56	37	35
West Virginia	5,390	4,905	6,130	5,333	64	61	40	37
North Carolina	13,255	13,650	15,015	14,114	57	47	35	32
South Carolina	7,075	7,360	7,730	6,725	60	51	37	34
Georgia	11,405	11,635	11,635	11,635	55	46	33	31
Florida	3,250	3,410	3,070	2,763	71	58	50	42
South Atlantic	67,095	67,510	73,020	66,883	61.6	54.5	38.7	35.4
Kentucky	15,620	14,530	16,855	16,181	53	49	34	28
Tennessee	14,664	14,224	15,930	15,133	52	47	33	27
Alabama	11,055	10,500	11,340	10,773	49	37	27	26
Mississippi	10,284	10,180	10,405	8,948	49	37	30	25
Arkansas	9,860	10,845	11,725	10,318	48	43	29	23
Louisiana	5,825	5,825	5,941	6,238	56	48	34	31
Oklahoma	20,497	20,497	22,135	19,921	50	45	30	23
Texas	34,460	34,460	35,840	32,256	48	41	29	25
South Central	122,265	121,061	130,171	119,768	50.0	43.2	30.4	25.6
Montana	3,610	3,610	3,680	3,496	55	48	40	32
Idaho	3,907	3,427	3,015	3,317	55	48	34	27
Wyoming	1,320	1,400	1,190	1,357	58	47	38	33
Colorado	5,825	5,245	5,040	5,393	56	47	35	28
New Mexico	1,380	1,450	1,670	1,586	59	50	40	32
Arizona	997	947	995	1,015	77	72	59	50
Utah	4,248	3,398	2,752	3,633	51	42	36	29
Nevada	527	448	336	420	74	65	47	45
Washington	10,842	10,083	11,090	10,868	52	50	35	31
Oregon	5,074	5,330	4,477	4,790	60	52	40	33
California	29,310	24,900	21,165	22,223	69	55	47	42
Western	67,040	60,238	55,410	58,098	61.5	51.7	41.0	35.3
United States	653,101	629,275	655,417	662,550	63.2	55.9	40.7	33.8

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TABLE 422.—*Chickens: Number raised and value, United States, 1924–33*

Year	Number	Value per head	Total value
	Thousands	*Cents*	*1,000 dol.*
1924 [1]	*545, 848*	*76. 8*	*419, 381*
1925	608, 268	72. 0	437, 665
1926	643, 649	76. 3	491, 370
1927	672, 123	71. 9	483, 430
1928	627, 357	76. 7	481, 362
1929 [1]	*673, 092*	*86. 3*	*581, 110*
1929	673, 070	77. 9	524, 383
1930	653, 101	63. 2	412, 904
1931	629, 275	55. 9	351, 584
1932	655, 417	40. 7	266, 962
1933	662, 550	33. 8	223, 797

[1] Census report.

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TABLE 423.—*Poultry, live: Freight receipts at New York, by State of origin, 1929–33*

State	1929	1930	1931	1932	1933
	Cars	*Cars*	*Cars*	*Cars*	*Cars*
Alabama	181	129	166	151	99
Arkansas	369	349	359	290	248
Colorado	86	82	24	17	2
Delaware	-	1	-	-	-
Florida	2	4	3	4	-
Georgia	179	79	62	35	9
Illinois	880	1, 174	978	851	1, 234
Indiana	963	1, 168	942	1, 051	1, 092
Iowa	354	604	732	598	432
Kansas	422	509	447	430	254
Kentucky	397	511	593	596	732
Louisiana	-	-	-	12	3
Maryland	-	2	1	-	-
Massachusetts	-	-	-	-	-
Michigan	6	-	-	2	3
Minnesota	131	123	187	58	29
Mississippi	90	76	75	60	46
Missouri	1, 874	2, 019	1, 650	1, 839	1, 611
Nebraska	1, 156	1, 082	985	802	432
New Jersey	-	1	-	-	-
New Mexico	13	2	-	-	-
New York	1	-	-	-	-
North Carolina	240	107	63	50	35
North Dakota	57	55	76	48	22
Ohio	335	305	335	461	462
Oklahoma	835	763	728	445	248
Pennsylvania	44	12	8	4	1
South Carolina	125	49	59	44	24
South Dakota	273	214	300	271	157
Tennessee	884	642	857	690	805
Texas	348	332	233	183	125
Utah	4	-	-	-	-
Virginia	56	91	96	66	34
Wisconsin	175	188	192	68	10
Wyoming	13	4	1	-	-
Other States	-	-	-	-	1
United States	10, 493	10, 677	10, 152	9, 126	8, 150

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TABLE 424.—*Poultry, dressed: Receipts, gross weight,*[1] *at 4 markets, by months, 1929–33, and total, 1924–33*

Market and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
Boston:													
1929	4, 586	3, 231	2, 315	2, 855	2, 718	3, 369	3, 153	3, 628	4, 309	5, 048	8, 826	10, 395	54, 433
1930	4, 270	3, 992	2, 815	2, 544	3, 193	3, 514	3, 401	2, 952	3, 154	3, 875	8, 270	9, 309	51, 289
1931	4, 840	4, 565	3, 846	2, 976	2, 559	3, 216	3, 476	3, 635	3, 787	4, 434	9, 698	10, 750	57, 782
1932	4, 141	3, 927	4, 094	2, 730	2, 967	3, 255	2, 839	3, 487	3, 619	4, 265	10, 633	12, 256	58, 213
1933	5, 543	3, 803	3, 387	3, 369	3, 832	4, 128	3, 800	4, 004	3, 939	5, 081	12, 374	11, 468	64, 728
New York:													
1929	14, 221	10, 900	9, 964	9, 520	10, 233	11, 876	13, 078	15, 707	16, 558	20, 602	31, 495	32, 903	197, 057
1930	15, 054	11, 674	8, 476	10, 630	13, 877	14, 999	11, 807	12, 533	15, 383	19, 647	32, 584	34, 221	200, 885
1931	17, 969	13, 396	9, 920	10, 073	10, 553	13, 657	15, 242	18, 294	21, 147	18, 749	33, 029	36, 882	218, 911
1932	12, 534	9, 910	10, 292	8, 852	11, 454	13, 728	12, 708	14, 288	15, 362	19, 651	34, 609	32, 057	195, 445
1933	15, 747	11, 835	10, 963	12, 115	15, 013	15, 641	14, 144	16, 329	17, 417	21, 220	39, 622	33, 048	223, 094
Philadelphia:													
1929	2, 548	1, 851	1, 680	1, 471	1, 557	1, 663	2, 134	2, 319	2, 302	2, 542	6, 002	8, 595	34, 664
1930	3, 041	2, 501	2, 207	1, 991	2, 388	2, 117	1, 794	1, 772	2, 166	3, 046	5, 607	7, 906	36, 536
1931	2, 384	2, 179	2, 863	1, 754	1, 560	2, 509	2, 729	2, 875	2, 555	2, 524	6, 018	8, 243	38, 193
1932	1, 881	2, 467	1, 943	1, 960	2, 555	1, 934	1, 912	2, 191	2, 096	2, 614	6, 259	8, 635	36, 447
1933	3, 141	2, 717	1, 894	2, 027	2, 569	2, 344	2, 115	1, 900	1, 743	2, 306	6, 591	7, 719	37, 066
Chicago:													
1929	7, 712	3, 469	2, 707	2, 725	2, 811	3, 270	3, 520	3, 984	4, 710	9, 070	25, 578	23, 812	93, 368
1930	9, 835	5, 597	2, 899	2, 339	2, 163	2, 645	2, 303	2, 777	3, 809	6, 274	19, 409	20, 103	80, 153
1931	7, 770	4, 529	3, 563	2, 320	2, 309	2, 501	3, 130	3, 673	4, 642	4, 397	14, 203	18, 438	71, 475
1932	4, 855	3, 317	2, 396	1, 505	1, 428	1, 326	853	1, 616	3, 333	5, 232	19, 736	19, 752	65, 349
1933	4, 713	2, 442	1, 241	859	1, 294	1, 558	1, 668	1, 355	1, 474	2, 982	19, 731	16, 113	55, 430
Total:													
1924	37, 150	26, 395	20, 344	15, 182	17, 319	17, 862	19, 572	17, 543	19, 868	26, 982	60, 445	78, 068	356, 730
1925	27, 585	19, 383	15, 048	13, 323	16, 166	17, 487	17, 676	17, 466	18, 683	27, 259	61, 488	66, 794	318, 358
1926	26, 122	18, 576	17, 344	13, 809	16, 371	21, 099	20, 724	22, 932	24, 278	30, 738	68, 594	75, 228	355, 815
1927	26, 652	18, 119	15, 362	13, 772	19, 853	21, 015	17, 789	22, 376	23, 935	28, 710	60, 422	68, 974	336, 979
1928	28, 602	20, 012	17, 560	15, 815	17, 608	18, 571	21, 853	21, 910	23, 564	35, 163	59, 788	68, 537	348, 983
1929	29, 067	19, 451	16, 666	16, 571	17, 319	20, 178	21, 885	25, 638	27, 879	37, 262	71, 901	75, 705	379, 522
1930	32, 200	23, 764	16, 397	17, 504	21, 621	23, 275	19, 305	20, 034	24, 512	32, 842	65, 870	71, 539	368, 863
1931	32, 963	24, 669	20, 192	17, 123	16, 981	21, 883	24, 577	28, 477	32, 131	30, 104	62, 948	74, 313	386, 361
1932	23, 411	19, 621	18, 725	15, 047	18, 404	20, 243	18, 312	21, 582	24, 410	31, 762	71, 237	72, 700	355, 454
1933	29, 144	20, 797	17, 485	18, 370	22, 708	23, 671	21, 727	23, 588	24, 573	31, 589	78, 318	68, 348	380, 318

[1] Gross weight includes container and wrapping.

Bureau of Agricultural Economics; compiled from reports of Bureau representatives in the various markets.

TABLE 425.—*Poultry, dressed: Receipts, gross weight,*[1] *at 4 markets, by State of origin, 1929–33*

Market and origin	1929	1930	1931	1932	1933
BOSTON	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
Ill	10, 651	10, 497	9, 284	8, 909	8, 698
Ind	3, 200	3, 677	3, 296	3, 270	4, 301
Iowa	7, 609	7, 495	8, 917	9, 109	10, 144
Kans	4, 917	2, 155	3, 774	3, 495	4, 346
Ky	141	365	227	312	614
Me	500	479	319	313	207
Mass	27	37	5	5	2
Mich	663	515	424	466	503
Minn	6, 786	9, 024	9, 502	5, 835	10, 351
Mo	2, 722	2, 328	2, 100	3, 126	2, 646
Nebr	3, 163	3, 950	3, 763	3, 233	2, 789
N.H	15	25	13	18	12
N.Y	757	1, 008	942	429	621
N.Dak	1, 473	1, 521	2, 678	5, 575	4, 526
Ohio	140	84	254	258	228
Okla	1, 364	1, 215	1, 369	1, 474	2, 013
Pa	1	21	200	126	152
S.Dak	559	377	1, 541	2, 723	4, 065
Tenn	510	173	323	590	774
Tex	6, 693	5, 476	7, 099	6, 937	6, 119
Vt	31	31	31	25	54
Wis	266	94	322	31	71
Other States	2, 245	742	1, 250	1, 756	1, 492
Canada	------	------	149	198	------
Total	54, 433	51, 289	57, 782	58, 213	64, 728
NEW YORK					
Ark	442	532	337	703	898
Calif	1, 753	1, 476	1, 668	1, 707	416
Colo	598	1, 225	891	1, 741	1, 005
Del	31	29	110	------	------
Idaho	1, 730	1, 122	1, 612	1, 442	738
Ill	24, 393	28, 182	27, 594	20, 970	22, 460
Ind	11, 480	13, 637	9, 671	8, 368	7, 305
Iowa	30, 819	30, 295	36, 614	26, 995	38, 090
Kans	20, 448	18, 887	16, 926	19, 746	21, 936
Ky	3, 050	2, 329	2, 672	2, 237	2, 484
Md	238	283	241	179	199
Mass	347	390	113	114	136
Mich	1, 962	1, 435	2, 374	1, 649	370
Minn	12, 914	21, 322	24, 080	24, 450	26, 806
Mo	19, 305	16, 301	13, 974	10, 399	16, 385
Mont	315	399	450	545	739
Nebr	8, 120	8, 861	9, 512	10, 031	14, 189
N.J	211	178	297	256	217
N.Y	12, 489	14, 415	23, 858	19, 582	20, 110
N.Dak	1, 841	2, 099	2, 783	4, 194	5, 786
Ohio	3, 399	2, 519	3, 154	2, 184	3, 406
Okla	7, 042	6, 410	8, 503	8, 972	9, 765
Oreg	766	338	747	1, 005	241
Pa	524	537	801	946	855
S.Dak	4, 692	5, 007	6, 625	5, 667	8, 057
Tenn	3, 384	2, 390	3, 890	3, 625	2, 718
Tex	18, 386	15, 301	15, 612	14, 059	14, 018
Utah	305	559	472	575	583
Va	2, 013	1, 586	722	660	730
Wash	619	383	353	493	338
Wis	934	1, 304	1, 103	833	901
Wyo	372	449	510	489	679
Other States	1, 115	705	600	583	534
Canada	20	------	42	46	------
Total	197, 057	200, 885	218, 911	195, 445	223, 094

Market and origin	1929	1930	1931	1932	1933
CHICAGO	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
Ark	193	216	381	38	18
Calif	234	78	138	18	2
Colo	378	546	433	631	333
Idaho	551	446	84	34	10
Ill	3, 411	3, 521	3, 376	2, 734	3, 671
Ind	778	801	217	235	291
Iowa	18, 505	18, 152	13, 694	11, 689	9, 702
Kans	5, 108	4, 111	4, 580	2, 847	1, 813
Ky	124	143	477	153	195
Mich	62	111	79	84	66
Minn	13, 833	9, 891	10, 852	9, 512	7, 017
Mo	6, 647	5, 985	4, 603	4, 293	2, 732
Mont	2, 904	1, 898	1, 135	1, 339	1, 377
Nebr	4, 169	3, 875	4, 273	2, 789	1, 970
N.J	271	------	194	74	------
N.Mex	145	226	164	250	47
N.Y	837	455	266	70	77
N.Dak	8, 502	7, 616	6, 826	10, 850	12, 064
Ohio	273	185	59	31	31
Okla	2, 830	1, 880	2, 607	1, 616	1, 675
S.Dak	10, 366	9, 010	9, 282	8, 312	6, 024
Tenn	483	381	393	155	66
Tex	6, 930	6, 268	4, 459	4, 967	4, 478
Wis	4, 811	3, 135	2, 310	1, 789	1, 486
Wyo	373	444	264	313	235
Other States	650	779	329	526	50
Canada	------	------	------	------	------
Total	93, 368	80, 153	71, 475	65, 349	55, 430
PHILADELPHIA					
Colo	350	16	283	495	465
Idaho	432	592	200	237	319
Ill	1, 531	2, 897	3, 627	3, 071	3, 850
Ind	2, 917	1, 562	1, 401	879	622
Iowa	5, 558	6, 577	6, 333	6, 544	6, 641
Kans	3, 564	2, 248	2, 496	2, 242	2, 207
Ky	621	756	218	791	794
Md	128	82	84	40	42
Mich	45	117	266	47	28
Minn	4, 190	7, 595	8, 707	6, 995	5, 137
Mo	951	1, 222	1, 570	2, 401	2, 207
Nebr	1, 438	1, 288	2, 416	2, 321	2, 369
N.J	130	812	197	------	10
N.Y	749	442	310	46	171
N.Dak	1, 140	882	793	1, 273	1, 260
Ohio	397	390	92	83	325
Okla	2, 984	2, 418	2, 508	2, 092	1, 549
Pa	190	69	14	63	6
S.Dak	497	922	574	679	788
Tex	3, 450	3, 029	4, 815	4, 955	5, 479
Va	1, 166	853	421	462	380
W.Va	313	302	143	116	146
Wis	374	191	125	64	234
Other States	1, 549	1, 274	600	551	2, 037
Total	34, 664	36, 536	38, 193	36, 447	37, 066

[1] Gross weight includes container and wrapping.

Bureau of Agricultural Economics; compiled from reports of Bureau representatives in the various markets.

TABLE 426.—*Poultry Receipts at New York, Chicago, Philadelphia, and Boston, 1920–33*

DRESSED POULTRY [1]

Year	New York	Chicago	Philadelphia	Boston	Year	New York	Chicago	Philadelphia	Boston
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*		*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
1920	101,093	57,324	21,606	34,086	1927	188,117	63,735	31,822	53,305
1921	124,551	64,992	22,892	39,921	1928	194,376	67,180	31,844	55,583
1922	138,212	73,661	21,319	44,563	1929	197,057	93,368	34,664	54,433
1923	163,948	90,273	24,611	56,013	1930	200,885	80,153	36,536	51,289
1924	179,362	88,464	27,640	61,264	1931	218,911	71,475	38,193	57,782
1925	170,257	72,086	29,295	46,720	1932	195,445	65,349	36,447	58,213
1926	192,895	77,632	32,126	53,162	1933	223,094	55,430	37,066	64,728

LIVE POULTRY

Year	New York [2]			Year	New York [2]			Chicago		
	Freight	Express	Truck		Freight	Express	Truck	Freight	Express	Truck
	Cars	*Cars* [3]	*Cars* [3]		*Cars*	*Cars* [3]	*Cars* [3]	*Cars*	*Cars* [3]	*Cars* [3]
1920	8,454	----------	--------	1927	12,104	830	--------	----------	----------	-------
1921	10,730	----------	--------	1928	11,267	833	--------	----------	----------	-------
1922	[4] 11,672	----------	--------	1929	10,493	599	--------	1,314	2,293	2,103
1923	12,072	443	--------	1930	10,677	423	1,386	1,141	2,113	2,122
1924	11,677	586	--------	1931	10,152	253	1,498	837	1,277	2,902
1925	10,498	747	--------	1932	9,126	142	2,048	318	570	3,461
1926	11,497	668	--------	1933	8,150	101	2,317	155	358	3,772

[1] Gross weights, which include container and wrapping.
[2] From 1919–26, inclusive, compiled from reports of Urner-Barry Co.
[3] Car-lot equivalents calculated from express and truck receipts.
[4] Includes express.

Bureau of Agricultural Economics; compiled from reports of Bureau representatives in the various markets.

TABLE 427.—*Poultry, fresh dressed: Average wholesale price per pound, New York City, by months, 1932 and 1933*

Month	1932						1933					
	Fowl	Broilers	Fryers	Roasters	Cocks	Weighted average [1]	Fowl	Broilers	Fryers	Roasters	Cocks	Weighted average [1]
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
January	21.10	22.20	20.20	22.60	13.17	21.40	16.00	17.00	14.90	15.90	10.00	15.85
February	20.60	22.50	21.00	22.50	13.00	20.86	15.40	19.20	16.00	16.50	11.00	15.61
March	20.80	------	------	22.00	12.10	20.77	15.10	------	------	12.16	11.00	14.64
April	19.90	------	------	------	12.00	19.61	16.20	------	------	------	11.00	16.01
May	18.90	22.20	------	------	9.40	18.84	16.12	23.25	------	------	11.00	16.69
June	17.40	21.90	25.00	------	9.97	18.29	14.56	20.00	21.10	------	10.70	15.68
July	17.04	20.90	21.10	25.40	11.93	17.98	14.60	18.90	19.80	22.00	10.00	15.76
August	17.08	20.75	19.10	25.75	11.53	18.78	14.00	18.00	17.60	24.00	10.00	16.23
September	18.56	22.95	17.40	22.20	11.60	19.64	14.86	18.35	16.10	22.50	10.00	17.22
October	16.46	22.05	15.70	17.95	11.00	17.02	13.98	18.30	14.60	17.40	10.00	15.37
November	16.86	21.35	15.30	17.25	11.00	16.79	13.40	16.70	14.40	16.60	9.50	14.73
December	15.14	18.80	13.80	15.80	10.90	15.28	13.80	16.70	14.20	17.00	9.00	14.93
Weighted avg.[1]	18.05	21.60	17.23	18.78	11.22	18.22	14.72	18.87	16.01	17.48	10.16	15.61

[1] Weighted on basis of market receipts by classes.

Bureau of Agricultural Economics; compiled from American Creamery and Poultry Produce Review.

TABLE 428.—*Poultry, frozen: Cold-storage holdings,[1] by months, United States, 1924–33*

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
1924	93,434	99,486	93,497	76,067	52,068	39,299	34,886	33,604	33,837	40,070	55,139	87,939
1925	133,990	138,189	130,513	108,608	82,732	68,126	58,562	53,558	47,946	44,345	53,787	86,733
1926	111,501	108,512	95,397	73,124	52,783	42,808	36,730	35,793	38,634	44,771	64,842	106,854
1927	144,497	145,076	129,510	104,697	77,282	61,525	50,064	42,293	39,711	43,201	52,315	85,030
1928	117,490	118,154	103,494	83,169	56,832	43,872	38,230	40,395	40,749	43,578	58,093	79,173
1929	109,684	102,380	89,088	68,728	52,901	41,643	42,001	40,896	49,010	61,976	86,873	115,876
1930	140,723	141,552	133,172	105,708	77,420	61,167	54,253	46,967	42,589	46,938	59,269	82,925
1931	104,913	101,307	95,188	69,986	45,920	35,348	32,762	36,438	43,056	56,215	65,668	89,971
1932	116,700	111,554	96,422	74,660	56,676	44,829	36,661	31,471	30,305	36,683	54,989	91,118
1933	111,642	104,833	88,675	67,285	45,824	38,131	42,705	44,970	47,789	50,177	59,528	91,211

[1] Quantities given are net weight.

Bureau of Agricultural Economics; compiled from reports made by cold-storage establishments.

TABLE 429.—*Chickens, live: Average price per pound received by producers, United States, 1924–33*

Year	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924	17.5	18.2	18.9	19.4	20.3	20.5	20.2	20.0	19.8	19.4	18.5	17.9	18.8
1925	18.5	19.1	20.0	21.1	22.0	21.6	21.4	20.8	20.4	20.0	19.2	19.5	19.9
1926	20.9	21.5	21.9	23.1	23.7	23.9	23.6	22.1	21.4	20.8	20.0	19.8	21.2
1927	20.1	21.1	21.3	21.8	21.7	20.2	19.9	19.7	19.4	19.7	19.4	19.2	19.9
1928	19.6	20.1	20.1	20.8	21.5	21.5	21.9	21.6	22.3	22.0	21.5	21.2	21.2
1929	21.6	22.1	22.7	23.8	24.4	24.6	23.7	22.7	22.4	21.5	20.3	19.1	21.5
1930	19.8	20.4	20.6	21.1	20.0	19.0	17.4	17.3	17.8	17.4	16.1	15.3	17.6
1931	15.7	15.1	16.1	16.7	15.9	16.1	15.8	16.2	15.7	14.4	14.4	13.9	15.0
1932	13.3	12.6	12.6	12.6	12.2	11.4	11.7	11.7	11.6	10.7	10.1	9.2	11.0
1933	9.3	9.4	9.1	9.8	10.4	10.0	10.4	9.8	9.5	9.3	8.8	8.6	9.2

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by number 1919 census to obtain a price for the United States; yearly price obtained by weighting monthly prices by receipts of dressed poultry. Average price of chickens (live weight) of all ages as reported.

TABLE 430.—*Turkeys, live: Average price per pound received by producers, United States, 1924–33*

Season	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Season	Oct. 15	Nov. 15	Dec. 15	Jan. 15
	Cents	*Cents*	*Cents*	*Cents*		*Cents*	*Cents*	*Cents*	*Cents*
1924–25	23.3	24.2	25.8	26.2	1929–30	27.2	27.1	23.5	23.7
1925–26	24.0	28.3	31.1	31.7	1930–31	21.0	20.1	19.9	21.6
1926–27	26.6	29.8	32.8	31.6	1931–32	17.9	18.3	19.4	18.0
1927–28	26.4	30.8	32.3	29.8	1932–33	13.2	12.9	10.9	10.2
1928–29	27.2	31.2	30.5	28.2	1933–34	11.3	11.8	11.1	11.6

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by number 1919 census to obtain a price for the United States.

TABLE 431.—*Eggs: Production and value in the United States, 1925–33*

Year	Production	Value per dozen	Total value	Year	Production	Value per dozen	Total value
	Millions	*Cents*	*1,000 dol.*		*Millions*	*Cents*	*1,000 dol.*
1925	27,910	30.1	701,405	1930	33,529	23.5	656,792
1926	30,148	28.7	721,697	1931	34,442	17.3	496,397
1927	31,761	24.8	658,348	1932	32,308	13.9	373,805
1928	32,523	27.8	754,428	1933	31,813	13.6	359,471
1929 [1]	*32,276*	*29.5*	*793,803*				

[1] Census report.

Bureau of Agricultural Economics.

TABLE 432.—*Eggs: Production and value per dozen, by States, 1930–33*

State and division	Production				Value per dozen			
	1930	1931	1932	1933	1930	1931	1932	1933
	Millions	*Millions*	*Millions*	*Millions*	*Cents*	*Cents*	*Cents*	*Cents*
Maine	175	181	185	198	36. 6	29. 4	24. 6	21. 9
New Hampshire	110	112	113	126	39. 6	31. 1	26. 1	23. 9
Vermont	85	83	82	86	34. 6	26. 8	22. 4	20. 7
Massachusetts	241	244	244	246	44. 1	36. 2	30. 5	28. 2
Rhode Island	32	33	33	36	42. 0	32. 3	27. 7	25. 8
Connecticut	175	179	192	203	40. 4	32. 3	27. 0	25. 8
New York	1, 226	1, 244	1, 225	1, 270	32. 2	25. 1	20. 9	19. 8
New Jersey	470	438	443	467	36. 4	29. 0	23. 9	23. 4
Pennsylvania	1, 495	1, 550	1, 504	1, 514	29. 2	22. 8	18. 2	17. 6
North Atlantic	4, 009	4, 064	4, 021	4, 146	33. 1	26. 1	21. 5	20. 5
Ohio	1, 693	1, 721	1, 646	1, 592	24. 3	18. 2	14. 1	13. 8
Indiana	1, 272	1, 291	1, 219	1, 173	22. 0	16. 2	12. 5	12. 1
Illinois	1, 707	1, 703	1, 606	1, 597	21. 7	16. 1	12. 5	11. 9
Michigan	963	1, 012	1, 057	1, 036	24. 8	18. 3	14. 6	13. 4
Wisconsin	1, 139	1, 268	1, 163	1, 166	22. 6	16. 5	13. 8	13. 1
East North Central	6, 774	6, 995	6, 691	6, 564	23. 0	17. 0	13. 5	12. 9
Minnesota	1, 400	1, 452	1, 316	1, 332	21. 0	14. 6	11. 7	11. 5
Iowa	2, 464	2, 562	2, 320	2, 356	19. 7	14. 8	11. 8	11. 1
Missouri	2, 260	2, 286	2, 076	2, 024	19. 8	14. 2	11. 0	10. 3
North Dakota	345	330	275	284	18. 3	12. 6	10. 1	9. 8
South Dakota	702	706	556	582	18. 2	13. 0	10. 7	10. 0
Nebraska	1, 147	1, 181	1, 027	1, 051	18. 2	12. 8	10. 3	10. 0
Kansas	1, 682	1, 757	1, 533	1, 533	18. 6	13. 3	10. 2	9. 9
West North Central	10, 000	10, 274	9, 103	9, 162	19. 4	13. 9	11. 0	10. 6
North Central	16, 774	17, 269	15, 794	15, 726	20. 9	15. 2	12. 1	11. 5
Delaware	148	148	140	122	29. 3	23. 1	18. 2	17. 2
Maryland	333	339	356	356	26. 8	21. 4	16. 4	16. 3
Virginia	679	683	713	721	25. 1	19. 2	14. 6	14. 8
West Virginia	352	343	336	324	26. 6	19. 9	14. 7	15. 0
North Carolina	430	429	425	435	26. 4	19. 7	15. 0	15. 3
South Carolina	196	194	177	178	28. 4	21. 5	16. 2	16. 2
Georgia	384	379	378	361	26. 0	19. 4	15. 4	15. 3
Florida	172	180	179	171	31. 0	23. 8	19. 0	19. 0
South Atlantic	2, 694	2, 695	2, 704	2, 668	26. 7	20. 4	15. 6	15. 7
Kentucky	642	609	601	595	22. 2	15. 9	11. 9	11. 5
Tennessee	662	653	651	632	21. 8	15. 7	11. 6	11. 5
Alabama	412	438	425	415	24. 0	16. 7	12. 9	13. 0
Mississippi	360	353	358	328	23. 6	16. 3	12. 2	12. 4
Arkansas	470	446	483	469	21. 3	14. 4	10. 9	10. 6
Louisiana	261	260	246	243	25. 4	17. 7	13. 2	13. 3
Oklahoma	924	920	878	851	19. 6	13. 0	9. 7	10. 3
Texas	1, 805	1, 900	1, 803	1, 723	20. 7	13. 8	10. 2	10. 8
South Central	5, 536	5, 579	5, 445	5, 256	21. 5	14. 7	11. 0	11. 2
Montana	175	176	150	155	22. 2	15. 7	14. 7	13. 6
Idaho	196	225	210	193	21. 8	14. 4	12. 8	14. 0
Wyoming	73	75	68	65	24. 8	18. 4	15. 7	14. 9
Colorado	340	333	289	271	22. 6	16. 2	12. 8	12. 5
New Mexico	79	83	79	82	25. 0	18. 1	14. 3	14. 3
Arizona	61	64	58	58	32. 2	25. 3	20. 0	19. 8
Utah	273	319	274	253	22. 4	16. 7	14. 3	14. 5
Nevada	26	30	27	23	27. 6	19. 9	17. 9	18. 4
Washington	888	923	858	817	25. 8	18. 8	15. 7	16. 4
Oregon	315	331	334	299	24. 2	17. 2	15. 0	15. 5
California	2, 090	2, 276	1, 997	1, 801	26. 6	19. 9	17. 2	17. 2
Western	4, 516	4, 835	4, 344	4, 017	25. 4	18. 7	15. 9	16. 3
United States	33, 529	34, 442	32, 308	31, 813	23. 5	17. 3	13. 9	13. 6

Bureau of Agricultural Economics.

TABLE 433.—*Eggs: Receipts at six markets by State of origin, 1929–33*

Market and origin	1929	1930	1931	1932	1933
BOSTON	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*
Illinois	195	161	191	138	88
Indiana	133	117	101	87	100
Iowa	245	272	323	282	283
Kansas	253	171	211	204	172
Maine	70	64	45	35	43
Massachusetts	6	10	9	6	11
Michigan	36	35	47	37	35
Minnesota	221	229	229	157	136
Missouri	107	64	80	82	80
Nebraska	128	139	117	107	96
New Hampshire	24	28	24	23	35
New York	31	27	25	15	7
Ohio	52	44	55	70	54
Vermont	17	17	15	15	19
Other States	200	195	164	181	171
Total	1,718	1,573	1,636	1,439	1,330
CHICAGO					
California	54	33	73	24	7
Illinois	184	150	127	219	368
Iowa	804	977	959	708	881
Kansas	315	232	295	319	375
Michigan	40	22	13	58	68
Minnesota	688	772	778	401	375
Missouri	566	542	555	678	932
Nebraska	429	399	340	159	213
North Dakota	45	40	51	------	39
Oklahoma	68	35	34	97	48
South Dakota	445	508	459	279	310
Texas	67	13	21	17	5
Wisconsin	477	490	382	254	339
Other States	216	262	227	199	175
Total	4,398	4,475	4,314	3,412	4,135
NEW YORK					
California	581	698	589	501	340
Delaware	39	39	28	35	49
Idaho	32	70	204	156	77
Illinois	771	829	704	631	540
Indiana	437	454	387	329	319
Iowa	1,254	1,388	1,354	1,070	1,151
Kansas	318	275	255	278	300
Kentucky	23	31	24	40	38
Maryland	88	70	36	41	54
Michigan	42	70	80	62	55
Minnesota	195	279	353	469	535
Missouri	403	276	328	286	373
Nebraska	145	166	273	216	178
New Jersey	214	228	232	201	214
New York	660	625	468	354	619
Ohio	204	209	226	294	304
NEW YORK—con.	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*
Oregon	48	53	94	126	85
Pennsylvania	189	214	166	179	231
Tennessee	113	87	36	33	50
Utah	215	396	554	378	285
Virginia	89	79	39	58	76
Washington	669	760	859	683	629
Wisconsin	29	49	57	34	66
Other States	371	250	255	248	317
Total	7,129	7,595	7,601	6,702	6,885
PHILADELPHIA					
California	65	112	97	72	41
Delaware	51	44	24	10	15
Illinois	113	124	187	118	120
Indiana	56	44	35	25	31
Iowa	126	125	154	139	182
Kansas	71	78	101	121	105
Maryland	43	55	33	19	34
Michigan	57	47	69	27	36
Minnesota	218	237	227	223	222
Missouri	167	157	207	255	210
Nebraska	34	39	37	37	46
New York	41	22	20	31	29
Ohio	51	47	27	23	40
Pennsylvania	274	287	177	119	160
Tennessee	15	25	9	20	15
Virginia	108	86	37	39	50
Washington	61	72	76	56	47
West Virginia	5	4	3	5	3
Wisconsin	52	65	67	45	31
Other States	89	89	143	112	113
Total	1,697	1,759	1,730	1,496	1,530
SAN FRANCISCO					
California	737	749	730	700	710
Idaho	3	2	2	2	7
Oregon	18	8	20	12	17
Washington	4	(1)	3	7	2
Other States	4	6	3	4	12
Total	766	765	758	725	748
LOS ANGELES					
California	641	761	730	539	542
Idaho	31	22	6	9	12
Oregon	18	5	14	13	20
Utah	20	52	3	15	42
Other States	25	4	14	16	39
Total	735	844	767	592	655

[1] Not over 500 cases.

Bureau of Agricultural Economics; compiled from reports of Bureau representatives in the various markets. Reported in cases of 30 dozen.

TABLE 434.—*Eggs: Receipts at 5 markets, 1919–33*

Year	New York	Chicago	Philadelphia	Boston	San Francisco
	1,000 cases	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*
1919	6,008	4,617	1,704	1,659	698
1920	4,991	4,154	1,396	1,648	757
1921	6,579	4,155	1,642	1,823	811
1922	6,821	4,684	1,703	1,970	838
1923	7,156	5,009	1,727	1,944	855
1924	6,543	4,679	1,595	1,829	760
1925	6,894	4,498	1,572	1,833	743
1926	6,818	4,575	1,566	1,808	744
1927	7,048	4,901	1,549	1,960	750
1928	7,288	4,601	1,735	1,757	756
1929	7,129	4,398	1,697	1,718	766
1930	7,595	4,475	1,759	1,573	765
1931	7,601	4,314	1,730	1,636	758
1932	6,702	3,412	1,496	1,439	725
1933	6,885	4,135	1,530	1,330	748

Bureau of Agricultural Economics. Compiled from reports of Bureau representatives in the various markets. Reported in cases of 30 dozen.

TABLE 435.—*Eggs: Receipts at 5 markets, by months, 1930–33*

Market and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	1,000 cases	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*
Boston:													
1930	96	112	209	227	208	175	138	102	82	66	68	90	1,573
1931	126	153	198	207	219	188	125	108	95	77	62	78	1,636
1932	98	138	181	164	201	155	117	109	79	71	64	62	1,439
1933	92	98	145	207	175	141	132	91	58	68	58	65	1,330
New York:													
1930	461	511	938	1,155	1,076	785	645	451	496	373	322	382	7,595
1931	478	530	940	1,116	1,052	868	568	516	484	398	304	347	7,601
1932	475	554	663	827	873	689	534	533	438	417	345	354	6,702
1933	593	491	769	934	1,021	710	588	493	369	352	269	296	6,885
Philadelphia:													
1930	100	112	204	244	261	178	145	94	114	91	86	130	1,759
1931	133	148	189	205	184	186	141	132	124	92	97	99	1,730
1932	114	105	136	193	171	153	114	110	125	101	90	84	1,496
1933	120	118	161	183	181	137	113	105	120	97	88	107	1,530
Chicago:													
1930	202	308	641	927	747	516	381	231	211	131	69	111	4,475
1931	231	367	634	867	709	559	290	238	191	96	61	71	4,314
1932	178	224	378	657	663	437	258	219	161	104	60	73	3,412
1933	189	229	491	881	1,049	524	260	206	133	76	37	60	4,135
San Francisco:													
1930	59	67	71	79	73	74	69	65	50	55	47	56	765
1931	58	66	85	83	72	61	56	59	49	59	54	56	758
1932	72	68	77	75	63	62	57	64	51	46	45	45	725
1933	57	52	73	76	76	63	59	58	53	58	61	62	748

Bureau of Agricultural Economics. Compiled from reports of Bureau representatives in the various markets. Reported in cases of 30 dozen. See 1927 and 1931 Yearbooks for data for earlier years.

TABLE 436.—*Eggs, shell and frozen: Cold-storage holdings, United States, 1924–33*

Kind and year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
	1,000 cases	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*	*1,000 cases*
Shell eggs: [1]												
1924	1,927	500	44	579	3,563	6,875	8,685	9,267	8,778	7,409	5,267	3,102
1925	1,050	81	21	1,240	4,872	7,712	9,482	10,024	9,873	8,612	6,322	3,786
1926	1,683	578	77	872	3,735	7,236	9,133	9,845	9,573	8,048	5,888	3,215
1927	1,096	253	92	1,868	5,501	8,962	10,565	10,746	9,650	7,960	5,485	2,956
1928	882	26	66	1,087	4,515	8,168	10,002	10,496	9,944	8,542	6,247	3,542
1929	1,415	248	11	559	3,952	6,705	8,510	8,962	8,547	7,195	4,930	2,631
1930	704	139	84	2,231	5,766	9,178	10,743	11,198	10,375	9,174	6,785	4,154
1931	1,894	735	408	1,893	5,162	7,887	9,507	9,504	9,016	7,960	5,745	3,447
1932	1,475	663	258	700	2,982	5,380	6,339	6,431	5,960	4,895	3,225	1,199
1933	159	75	163	1,833	4,857	8,062	9,364	9,507	8,944	7,466	5,175	2,641
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb,*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
Frozen eggs: [2]												
1924	32,087	27,682	23,106	20,736	23,707	29,956	33,565	35,184	34,128	31,006	26,633	22,100
1925	21,303	16,292	11,364	11,353	19,579	29,544	38,379	42,855	47,099	44,299	45,314	39,336
1926	33,905	29,256	24,167	21,849	25,739	34,815	45,688	51,810	52,634	51,062	44,966	38,620
1927	33,593	31,207	26,053	33,272	52,053	71,605	81,263	81,418	77,508	71,208	62,066	54,703
1928	47,020	38,575	31,362	34,411	51,532	67,941	77,744	81,670	89,196	82,255	73,327	64,201
1929	56,181	48,055	38,250	34,918	51,825	71,560	84,766	91,488	86,693	81,541	70,331	61,772
1930	53,644	44,080	35,192	49,751	76,664	106,904	115,134	116,272	113,138	106,631	98,359	89,571
1931	83,184	75,685	73,889	78,051	91,517	106,607	113,513	114,700	110,271	103,302	94,816	86,407
1932	79,198	72,439	68,024	69,031	81,920	94,978	100,485	99,112	92,967	84,187	74,314	64,150
1933	55,339	46,448	40,450	45,090	62,944	85,323	103,019	107,660	102,449	93,182	82,302	72,348

[1] 30-dozen cases.
[2] Quantities given are net weight. 35 pounds of frozen eggs are approximately equivalent to 1 case of 30 dozen shell eggs.

Bureau of Agricultural Economics; compiled from reports made by cold-storage establishments.

TABLE 437.—*Eggs and egg products: International trade, average 1925–29, annual 1929–32*

EGGS IN THE SHELL

Country	Average, 1925–29 Exports	Average, 1925–29 Imports	1929 Exports	1929 Imports	1930 Exports	1930 Imports	1931 Exports	1931 Imports	1932 [1] Exports	1932 [1] Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*
Netherlands	98,429	8,965	119,909	4,879	124,859	1,324	126,689	425	117,667	401
Russia	86,978	0	65,219	0	14,471	163	30,038	100	10,537	141
Poland	76,215	493	78,620	298	80,999	50	70,687	2	54,971	1
Denmark	67,641	225	65,474	25	71,853	52	81,193	0	92,059	0
China	56,278	0	50,489	0	51,360	0	50,944	0	29,657	207
Irish Free State	47,058	449	48,109	275	47,355	106	46,097	103	38,831	80
Belgium	41,430	1,419	59,861	1,512	42,926	1,703	47,778	713	51,860	601
Italy	25,943	17,969	15,542	24,071	13,701	33,543	13,205	36,213	5,692	51,425
France	24,536	11,499	29,691	16,863	23,512	16,422	7,854	35,174	1,537	18,922
United States	22,521	350	12,075	308	18,579	317	7,684	309	2,319	244
Hungary	18,026	338	10,589	431	19,367	205	17,609	72	9,404	16
Bulgaria	17,258	0	18,697	0	28,239	0	32,876	0	27,644	0
Rumania	15,011	1	16,990	1	24,725	2	19,008	3	23,232	1
Morocco	14,985	0	18,469	0	14,629	0	13,828	0	-------	-------
Egypt	10,879	6	12,461	1	8,202	0	10,445	0	16,985	0
Algeria	5,830	17	6,839	49	4,233	[2] 15	1,898	[2] 46	1,233	-------
Lithuania	5,313	0	4,626	0	4,599	0	5,083	0	3,816	0
Sweden	4,422	679	7,419	351	6,543	628	4,289	1,971	6,477	293
Union of South Africa	3,477	113	4,546	48	6,158	47	6,143	90	5,458	28
Estonia	1,428	4	1,859	0	2,065	1	2,197	0	2,066	0
Norway	570	111	995	119	1,056	114	1,153	134	2,504	76
Finland	58	37	59	14	636	12	2,771	1	9,211	1
Total	644,286	42,675	648,538	49,245	610,067	54,704	599,469	75,356	513,160	72,437
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	973	238,350	1,556	247,430	715	264,306	227	258,729	-------	199,765
Germany	591	220,035	253	229,412	159	219,909	204	193,915	87	197,037
Spain	15	34,479	13	44,341	12	39,154	15	33,370	14	34,218
Austria	1,730	22,033	1,773	20,884	1,939	25,869	1,452	25,618	208	16,797
Japan	0	20,465	0	10,074	0	8,167	0	12,142	0	161
Switzerland	13	17,132	16	18,004	9	20,221	24	23,003	21	24,752
Argentina	1,518	9,791	482	11,388	969	14,846	2,606	8,318	2,480	1,004
Cuba	0	8,793	0	2,652	0	1,314	0	55	0	-------
Philippine Islands	0	5,935	0	7,237	0	6,958	0	10,990	0	9,899
Czechoslovakia	1,828	4,917	1,921	7,114	2,622	7,936	1,223	12,136	326	11,894
Mexico	0	4,202	0	2,295	0	4,361	0	89	-------	-------
British Malaya	366	3,638	426	4,606	270	4,341	218	3,366	166	1,588
Canada	1,365	2,244	1,148	713	189	2,908	634	68	273	40
Chile	[3] 22	67	1	154	19	337	11	164	-------	0
Total	8,421	592,081	7,589	606,304	6,903	620,627	6,614	581,963	3,575	497,155

EGGS NOT IN THE SHELL

Country	Average, 1925–29 Exports	Average, 1925–29 Imports	1929 Exports	1929 Imports	1930 Exports	1930 Imports	1931 Exports	1931 Imports	1932 [1] Exports	1932 [1] Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
China	128,990	0	150,923	0	153,304	0	132,606	0	119,361	0
Yugoslavia	57,955	[4] 1	49,066	2	67,084	7	57,997	2	36,356	11
Turkey	23,486	0	24,615	0	39,403	0	54,101	0	-------	0
Total	210,431	1	224,604	2	239,791	7	244,704	2	155,717	11
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	598	65,731	384	74,542	157	85,630	111	83,286	-------	86,522
United States	464	24,914	326	26,030	196	16,156	255	7,661	44	3,085
Germany	2,098	18,252	2,413	25,544	2,065	27,231	1,908	21,031	1,365	23,840
France	238	7,375	496	10,061	255	13,080	188	16,608	159	7,321
Netherlands	860	4,355	791	5,485	1,009	5,588	865	4,962	793	4,094
Canada	0	1,700	0	560	0	1,758	0	120	0	117
Italy	16	1,317	6	1,647	12	1,854	9	2,690	4	2,058
Belgium	216	1,137	592	1,631	486	1,642	1,665	2,730	1,537	2,324
Irish Free State	19	1,031	4	1,067	19	1,126	23	1,202	-------	1,140
Sweden	5	859	2	1,232	19	1,073	0	1,126	0	848
Czechoslovakia	13	850	7	1,233	7	1,579	3	1,957	2	1,786
Austria	8	680	6	1,633	1	1,290	0	1,022	0	939
Denmark	7	512	1	458	7	570	15	636	3	524
Union of South Africa	16	54	0	14	31	7	3	10	1	8
Norway	0	11	0	19	0	22	0	20	2	21
Total	4,558	128,778	5,028	151,156	4,264	158,606	5,045	145,061	3,910	134,627

[1] Preliminary. [2] International Yearbook of Agricultural Statistics. [3] 4-year average. [4] 2-year average.

Bureau of Agricultural Economics; official sources except where otherwise noted.
In countries reporting other than dozens of eggs, the conversion factor used is 1½ pounds equals 1 dozen.

TABLE 438.—*Eggs: Average price per dozen received by producers, United States, 1924–33*

Year	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Weighted average
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924	35.4	33.6	20.4	19.1	19.8	21.1	22.8	26.1	31.8	38.2	45.8	49.9	25.2
1925	48.6	35.7	23.9	24.2	24.8	26.1	27.9	30.0	31.1	37.7	46.8	48.1	29.1
1926	36.3	28.9	24.1	24.8	25.2	25.7	25.7	26.4	31.5	36.8	44.9	47.6	27.9
1927	36.9	29.0	20.8	20.3	19.8	17.8	20.7	23.4	29.4	35.6	41.6	43.3	23.8
1928	38.2	29.1	23.4	22.8	24.2	23.9	25.6	27.4	31.4	34.9	39.6	42.9	26.8
1929	33.0	31.9	28.0	23.0	24.4	26.1	27.2	29.8	33.9	38.4	44.2	45.8	28.6
1930	38.4	31.8	21.3	21.5	20.0	18.6	18.8	20.6	25.3	26.5	31.7	26.8	22.7
1931	22.1	14.1	17.0	16.2	13.3	14.1	14.8	17.3	19.1	22.7	26.4	25.6	16.6
1932	17.2	12.8	10.4	10.2	10.3	10.6	12.0	14.7	17.2	22.5	26.1	28.1	13.1
1933	21.4	11.0	10.1	10.3	11.8	10.1	13.1	13.3	16.3	20.8	24.0	21.6	12.8

Bureau of Agricultural Economics. Based on returns from special price reporters. Monthly prices, by States, weighted by production 1919 census to obtain a price for the United States. Yearly price obtained by weighting monthly prices by receipts monthly.

TABLE 439.—*Eggs: Average wholesale price per dozen at 5 markets, by months, specified years*

Market, grade, and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
New York:													
Fresh firsts:	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924	42	39	25	24	25	27	29	33	39	44	52	57	36
1925	59	44	30	29	32	33	33	33	37	43	56	51	40
1926	38	31	29	32	31	30	29	31	38	40	50	48	36
1927	42	32	25	26	23	23	25	28	34	40	44	45	32
1928	45	32	29	28	30	29	30	31	33	32	37	37	33
1929	36	41	33	28	31	31	32	34	36	40	48	51	37
1930	42	35	26	27	23	24	22	25	25	26	31	29	28
1931	24	20	22	20	19	19	20	22	24	24	28	27	22
1932	19	18	15	15	16	16	16	20	22	26	34	33	21
1933	24	14	14	13	14	13	15	14	18	20	26	22	17
Chicago:													
Fresh firsts:													
1929	36	38	29	26	30	29	31	33	37	42	47	48	35
1930	40	34	24	24	21	22	21	25	26	28	33	28	27
1931	21	16	19	17	17	16	18	19	20	24	29	24	20
1932	18	14	12	12	12	12	13	16	19	23	30	29	18
1933	21	12	12	12	13	12	14	13	16	19	23	19	16
Boston:													
Western firsts:													
1929	38	43	32	28	31	31	32	35	37	40	49	52	37
1930	44	37	26	26	24	24	22	25	25	26	34	28	39
1931	25	18	21	20	18	17	19	20	21	25	30	27	22
1932	19	17	14	14	15	14	15	18	21	24	30	32	20
1933	24	14	14	14	14	14	15	15	18	21	24	20	17
Philadelphia:													
Extra firsts:													
1929	41	45	35	29	33	34	36	39	44	49	56	58	41
1930	46	40	28	28	26	27	28	32	33	36	44	32	33
1931	28	20	22	21	19	21	24	24	26	29	34	31	25
1932	23	18	15	15	16	16	17	22	23	28	35	34	22
1933	27	15	15	15	16	15	19	18	22	26	32	28	21
San Francisco:													
Fresh extras:													
1929	31	26	25	26	31	32	37	41	44	52	49	44	36
1930	36	28	28	28	27	26	26	31	37	40	41	27	31
1931	22	19	20	20	20	20	22	26	31	38	33	29	25
1932	20	17	17	16	16	17	18	20	27	30	33	28	22
1933	24	15	16	16	17	18	19	21	26	29	29	24	21

Bureau of Agricultural Economics. Compiled from the Bureau of Labor Statistics wholesale price bulletins, monthly, except prices for San Francisco, which are from the Pacific Dairy Review.

STATISTICS OF FOREIGN TRADE IN AGRICULTURAL PRODUCTS

TABLE 440.—*Summary of exports and imports, United States, 1909–10 to 1932–33*

Year beginning July	Total exports	Agricultural exports [1]: Domestic: Value	Agricultural exports [1]: Domestic: Percentage of total	Agricultural exports [1]: Reexports	Total imports	Agricultural imports [1]: Value	Agricultural imports [1]: Percentage of total	Excess of agricultural exports	Forest products: Exports: Domestic	Forest products: Exports: Reexports	Forest products: Imports	Forest products: Excess of imports
	1,000 dollars	*1,000 dollars*	*Percent*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*Percent*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
1909–10	1,710,084	871,158	50.9	22,162	1,556,947	794,370	51.0	98,950	85,030	2,110	75,010	[2] 12,130
1910–11	2,013,549	1,030,794	51.2	20,573	1,527,226	773,116	50.6	278,251	103,039	1,679	71,736	[2] 32,982
1911–12	2,170,320	1,050,627	48.4	17,171	1,653,265	888,495	53.7	179,303	108,122	1,350	69,581	[2] 39,891
1912–13	2,428,506	1,123,652	46.3	19,652	1,813,008	916,634	50.6	226,670	124,836	2,809	82,878	[2] 44,767
1913–14	2,329,684	1,113,974	47.8	20,286	1,893,926	1,000,409	52.8	133,851	106,979	1,961	81,162	[2] 27,778
1914–15	2,716,178	1,475,938	54.3	38,222	1,674,170	997,911	59.6	516,249	52,554	1,287	79,451	25,610
1915–16	4,272,178	1,518,071	35.5	45,017	2,197,884	1,349,563	61.4	213,525	68,155	1,435	94,265	24,675
1916–17	6,227,164	1,968,253	31.6	45,420	2,659,355	1,599,660	60.2	414,013	68,919	3,392	129,580	57,269
1917–18	5,838,652	2,280,466	39.1	44,210	2,945,655	1,826,436	62.0	498,240	87,181	1,409	128,490	39,900
1918–19	7,081,462	3,579,918	50.6	105,587	3,095,720	1,930,028	62.3	1,755,477	113,275	3,758	132,588	15,555
1919–20	7,949,309	3,861,511	48.6	128,191	5,238,352	3,410,018	65.1	579,684	190,049	5,380	229,091	33,662
1920–21	6,385,884	2,607,641	40.8	90,739	3,654,459	2,060,237	56.4	638,143	141,876	4,043	225,162	79,243
1921–22	3,699,909	1,915,866	51.8	43,589	2,608,079	1,371,720	52.6	587,735	94,115	2,315	156,843	70,413
1922–23	3,886,682	1,799,168	46.3	48,393	3,780,959	2,077,240	54.9	[3] 229,679	129,981	1,955	234,598	102,662
1923–24	4,223,973	1,867,098	44.2	62,719	3,554,037	1,875,365	52.8	54,452	162,374	1,563	216,712	52,775
1924–25	4,778,155	2,280,381	47.7	64,168	3,824,128	2,057,163	53.8	287,386	156,187	1,290	227,423	69,946
1925–26	4,653,148	1,891,739	40.7	75,162	4,464,872	2,529,775	56.7	[3] 562,874	162,731	1,450	238,545	74,364
1926–27	4,867,346	1,907,864	39.2	72,222	4,252,024	2,281,421	53.7	[3] 301,335	171,970	1,365	238,247	64,912
1927–28	4,773,332	1,815,451	38.0	73,391	4,147,499	2,193,868	52.9	[3] 305,026	174,599	1,528	215,874	39,747
1928–29	5,283,938	1,847,216	35.0	63,942	4,291,888	2,179,046	50.8	[3] 267,888	178,092	2,157	222,249	42,000
1929–30	4,617,730	1,495,907	32.4	50,670	3,848,971	1,890,508	49.1	[3] 343,931	161,743	1,382	209,418	46,293
1930–31	3,031,557	1,038,034	34.2	28,791	2,432,075	1,163,054	47.8	[3] 96,229	97,695	858	142,590	44,037
1931–32	1,908,087	752,145	39.4	22,692	1,730,270	834,238	48.2	[3] 59,401	62,270	409	104,543	41,864
1932–33 [4]	1,413,451	588,169	41.6	14,763	1,168,185	611,688	52.4	[3] 8,756	46,634	297	65,544	18,613

[1] Does not include forest products, but includes rubber now mostly a plantation product.
[2] Excess of exports. [3] Excess of agricultural imports. [4] Preliminary.

Bureau of Agricultural Economics.

This table supersedes table 500 in the Yearbook of Agriculture, 1931; the value of total imports and exports has been given and the imports of rubber, unmanufactured, and similar gums have been deducted from the imports of forest products and added to imports of agricultural products, also reexports of rubber, unmanufactured, and similar gums have been deducted from reexports of forest products and added to reexports of agricultural products. Rubber, unmanufactured, and similar gums, includes: Balata, guayule, gutta-joolatong or jelutong or pontianak, gutta-percha, India rubber, crude, and India rubber scrap or refuse, fit only for remanufacture.

In the statistics of foreign commerce of the United States the Philippine Islands are treated as a foreign country. The statistics of foreign commerce include the trade of the customs districts of Alaska, Hawaii, and Puerto Rico with foreign countries, but do not include the trade of these Territories with the United States.

TABLE 441.—*Agricultural products: Value of trade between continental United States and noncontiguous Territories, 1923–24 to 1932–33*

Year beginning July	Puerto Rico: United States shipments to	Puerto Rico: Shipments to United States	Hawaii: United States shipments to	Hawaii: Shipments to United States	Alaska: United States shipments to	Alaska: Shipments to United States
	1,000 dollars	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
1923–24	28,819	66,581	17,539	104,267	9,016	365
1924–25	29,710	70,190	17,954	97,430	9,774	415
1925–26	32,212	70,385	17,806	105,470	9,539	516
1926–27	32,603	84,061	18,019	98,600	8,737	720
1927–28	28,146	82,326	19,004	110,338	9,435	231
1928–29	31,466	53,333	19,348	103,653	9,108	290
1929–30	28,117	75,868	19,883	98,097	9,257	511
1930–31	25,062	75,390	17,759	103,119	6,982	380
1931–32	18,796	67,769	15,795	92,460	5,443	147
1932–33 [1]	17,596	58,992	13,481	79,992	4,920	65

[1] Preliminary.

Bureau of Agricultural Economics; compiled from Monthly Summary of Foreign Commerce of the United States, June issues, 1923–33.

TABLE 442.—*Agricultural products: Value of principal groups exported from and imported into the United States, 1930–31 to 1932–33*

Article	Year beginning July					
	Domestic exports			General imports		
	1930–31	1931–32	1932–33 [1]	1930–31	1931–32	1932–33 [1]
ANIMALS AND ANIMAL PRODUCTS	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Animals, live	2, 954	1, 090	970	5, 312	4, 275	2, 299
Dairy products	12, 248	8, 721	4, 291	16, 942	14, 293	12, 582
Eggs and egg products	3, 472	827	404	2, 890	1, 158	815
Hides and skins, raw (except fur)	4, 208	2, 230	1, 900	60, 734	37, 412	22, 984
Meat and meat products	117, 195	66, 811	53, 376	6, 890	5, 775	3, 937
Silk, unmanufactured				227, 323	158, 479	96, 483
Wool and mohair, unmanufactured	55	34	35	24, 390	12, 706	4, 521
Animal products, miscellaneous	7, 465	5, 837	5, 580	27, 645	15, 211	9, 698
Total	147, 597	85, 550	66, 556	372, 126	249, 309	153, 319
VEGETABLE PRODUCTS						
Chocolate and cocoa	448	322	229	28, 029	20, 412	18, 381
Coffee	2, 790	1, 607	1, 309	192, 820	149, 110	128, 548
Cotton lint, unmanufactured	422, 105	337, 595	321, 960	5, 328	6, 435	5, 869
Linters	2, 453	1, 694	2, 327			
Total cotton, unmanufactured	424, 558	339, 289	324, 287	5, 328	6, 435	5, 869
Fruits	120, 586	91, 684	65, 933	47, 308	37, 825	30, 492
Grains and grain products	146, 580	106, 406	38, 542	26, 264	12, 219	7, 439
Nuts	1, 169	1, 028	736	17, 737	13, 491	7, 876
Oilseeds and oilseed products	15, 601	17, 780	12, 762	101, 090	66, 924	45, 873
Rubber and similar gums				96, 112	51, 925	26, 349
Seeds, except oilseeds	3, 198	1, 839	1, 184	5, 317	3, 772	2, 688
Spices	178	133	106	11, 160	8, 903	7, 062
Sugar, molasses, and sirups	4, 066	2, 328	1, 403	126, 526	115, 576	106, 782
Tea				21, 903	15, 767	10, 670
Tobacco, unmanufactured	142, 285	86, 281	62, 823	37, 692	32, 544	21, 004
Vegetables and preparations	15, 403	8, 725	6, 282	28, 297	18, 848	12, 561
Vegetable products, miscellaneous	13, 575	9, 173	6, 018	45, 345	31, 178	26, 775
Total vegetable products	890, 437	666, 595	521, 614	790, 928	584, 929	458, 369
Total animal and vegetable products	1, 038, 034	752, 145	588, 170	1, 163, 054	834, 238	611, 688
FOREST PRODUCTS						
Dyeing and tanning materials	1, 620	1, 536	1, 382	5, 524	4, 685	2, 544
Gums, resins, and balsams	17, 631	13, 415	11, 950	15, 504	10, 770	5, 339
Wood	72, 773	42, 247	29, 500	51, 729	31, 699	15, 484
Forest products, miscellaneous	5, 671	5, 072	3, 802	69, 833	57, 388	42, 176
Total	97, 695	62, 270	46, 634	142, 590	104, 542	65, 543
Total agricultural products	1, 135, 729	814, 415	634, 804	1, 305, 644	938, 780	677, 231

[1] Preliminary.

Bureau of Agricultural Economics; compiled from Monthly Summary of Foreign Commerce of the United States, June issues, 1932 and 1933.

In the statistics of foreign commerce of the United States, the Philippine Islands are treated as a foreign country. The statistics of foreign commerce include the trade of the customs districts of Alaska, Hawaii, and Puerto Rico with foreign countries, but do not include the trade of these Territories with the United States.

TABLE 443.—*Index numbers of quantities of principal agricultural exports, United States 1909–10 to 1932–33*

[1909–10 to 1913–14=100]

Year beginning July	44 commodities	44 commodities except cotton	Cotton fiber	Grains and grain products	Cattle and meat products	Dairy products	Fruits	Tobacco
1909–10	78	86	73	82	91	58	76	91
1910–11	92	92	91	85	104	93	89	90
1911–12	114	100	125	78	115	126	101	97
1912–13	110	119	103	143	97	120	136	107
1913–14	106	103	108	112	92	103	98	114
1914–15	138	189	99	301	126	302	119	89
1915–16	118	184	70	237	164	479	109	113
1916–17	118	182	70	217	164	716	101	105
1917–18	101	165	53	179	197	975	63	74
1918–19	145	255	63	272	287	1, 287	111	160
1919–20	134	207	80	218	185	1, 275	122	165
1920–21	127	212	64	329	154	524	108	129
1921–22	137	218	76	317	153	571	105	118
1922–23	112	182	59	246	169	406	121	116
1923–24	104	153	67	143	179	451	214	152
1924–25	126	167	95	225	140	396	184	110
1925–26	106	123	93	117	114	327	211	137
1926–27	136	143	131	188	98	288	301	132
1927–28	112	138	92	188	98	263	258	125
1928–29	117	141	99	174	102	243	372	144
1929–30	97	117	82	130	104	221	216	153
1930–31	90	101	81	104	74	190	337	150
1931–32	98	91	103	104	63	123	305	110
1932–33	84	63	100	40	63	74	255	102

Bureau of Agricultural Economics. Computations are based on the gross exports of 44 of the most important farm products. The index numbers were calculated as follows: Quantities of various commodities exported each year were multiplied by the average yearly export prices of these commodities from July 1909 to June 1914. The sum of the values determined in this way was then divided by the average yearly value of exports from 1909–10 to 1913–14 to obtain the index.

TABLE 444.—*Exports and imports of selected forest products, 1909–10 to 1932–33*

Year beginning July	Domestic exports					Imports				
	Lumber		Rosin	Spirits or turpentine	Timber, sawed	Camphor, crude	Lumber		Shellac	Wood pulp
	Boards, deals, and planks	Staves					Boards, deals, planks, and other sawed	Shingles		
	1,000 M feet	*Thousands*	*1,000 barrels*	*1,000 gallons*	*1,000 M feet*	*1,000 pounds*	*1,000 M feet*	*1,000 M*	*1,000 pounds*	*1,000 long tons*
1909–10	1, 684	49, 784	2, 144	15, 588	491	3, 007	1, 054	763	29, 402	378
1910–11	2, 032	65, 726	2, 190	14, 818	532	3, 726	872	643	15, 495	492
1911–12	2, 307	64, 163	2, 474	19, 599	438	2, 155	905	515	18, 746	478
1912–13	2, 550	89, 006	2, 806	21, 094	512	3, 709	1, 091	560	21, 912	502
1913–14	2, 405	77, 151	2, 418	18, 901	441	3, 477	929	895	16, 720	508
1914–15	1, 129	39, 297	1, 372	9, 464	174	3, 729	939	1, 487	24, 153	588
1915–16	1, 177	57, 538	1, 571	9, 310	201	4, 574	1, 218	1, 769	25, 818	507
1916–17	1, 042	61, 469	1, 639	8, 842	184	6, 885	1, 175	1, 924	32, 540	699
1917–18	1, 068	63, 207	1, 071	5, 095	106	3, 638	1, 283	1, 878	22, 913	504
1918–19	1, 073	62, 753	882	8, 065	92	2, 623	977	1, 757	14, 269	475
1919–20	1, 518	80, 791	1, 322	7, 461	234	4, 026	1, 492	2, 152	34, 151	727
1920–21	1, 269	65, 710	877	9, 742	123	2, 093	920	1, 831	23, 872	624
1921–22	1, 543	35, 162	786	10, 786	268	1, 592	1, 124	2, 190	30, 768	902
1922–23	1, 549	57, 466	1, 040	9, 012	383	3, 498	1, 958	2, 695	32, 773	1, 293
1923–24	1, 867	60, 868	1, 205	11, 194	815	1, 955	1, 786	2, 417	28, 512	1, 188
1924–25	1, 929	79, 922	1, 412	12, 308	586	1, 904	1, 732	2, 551	21, 436	1, 529
1925–26	1, 985	75, 534	1, 073	10, 254	652	2, 616	1, 869	2, 482	26, 188	1, 469
1926–27	2, 013	74, 826	1, 229	13, 820	707	2, 175	1, 841	2, 275	28, 707	1, 509
1927–28	2, 318	78, 466	1, 300	14, 332	825	2, 704	1, 529	2, 034	23, 012	1, 521
1928–29	2, 387	82, 409	1, 309	14, 175	711	5, 064	1, 441	2, 052	31, 548	1, 643
1929–30	2, 100	78, 624	1, 366	15, 722	657	1, 777	1, 461	1, 387	26, 444	1, 722
1930–31	1, 466	47, 207	1, 099	13, 282	406	1, 246	915	1, 058	14, 145	1, 456
1931–32	1, 012	34, 982	1, 156	13, 520	319	2, 387	627	1, 081	13, 006	1, 459
1932–33 [1]	842	27, 852	1, 125	11, 281	320	1, 540	206	1, 378	8, 102	1, 237

[1] Preliminary.

Bureau of Agricultural Economics; compiled from Foreign Commerce and Navigation of the United States, 1909–18, and Monthly Summary of Foreign Commerce of the United States, June issues, 1919–33.

TABLE 445.—*Exports of selected domestic agricultural products, annual 1909–10 to 1932–33*

Year beginning July	Butter	Cheese	Milk, condensed and evaporated	Eggs in the shell	Pork and its products, total [1]	Pork, fresh	Pork, pickled	Bacon, including Cumberland sides	Hams and shoulders, including Wiltshire sides	Lard, pure
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 dozen*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1909–10	3,141	2,847	13,311	5,326	707,110	1,040	40,032	152,163	146,885	362,928
1910–11	4,878	10,367	12,180	8,559	879,455	1,355	45,729	156,675	57,709	476,108
1911–12	6,092	6,338	20,643	15,406	1,071,952	2,598	56,321	208,574	204,044	532,256
1912–13	3,586	2,599	16,526	20,409	984,697	2,458	53,749	200,994	159,545	519,025
1913–14	3,694	2,428	16,209	16,149	921,913	2,668	45,543	193,964	165,882	481,458
1914–15	9,851	55,363	37,236	20,784	1,106,180	3,908	45,656	346,718	203,701	475,532
1915–16	13,487	44,394	159,578	26,396	1,462,697	63,006	63,461	579,809	282,209	427,011
1916–17	26,835	66,050	259,141	24,926	1,501,948	50,436	46,993	667,152	266,657	444,770
1917–18	17,736	44,303	528,759	18,969	1,692,124	21,390	33,222	815,294	419,572	392,506
1918–19	33,740	18,792	728,741	28,385	2,704,694	19,644	31,504	1,238,247	667,240	724,771
1919–20	27,156	19,378	708,463	38,327	1,762,611	27,225	41,643	803,667	275,456	587,225
1920–21	7,829	10,826	262,668	26,960	1,522,162	57,075	33,286	489,298	172,012	746,157
1921–22	7,512	7,471	277,311	33,762	1,516,320	25,911	33,510	350,549	271,642	812,379
1922–23	9,410	8,446	157,038	34,284	1,794,880	43,772	40,934	408,334	319,269	952,642
1923–24	5,425	3,938	213,613	32,832	1,934,189	49,113	37,469	423,500	381,564	1,014,898
1924–25	8,384	9,432	173,547	25,107	1,400,149	27,603	26,726	236,263	292,214	792,735
1925–26	5,280	4,094	135,865	27,931	1,172,685	15,867	29,126	186,153	220,014	695,445
1926–27	5,048	3,773	108,942	27,962	1,012,668	10,881	27,962	127,576	143,649	675,812
1927–28	3,965	2,873	108,943	22,832	1,046,306	11,059	31,650	126,977	127,819	716,398
1928–29	3,778	2,572	112,492	15,982	1,112,394	10,641	39,906	129,248	125,396	780,914
1929–30	3,582	2,339	101,572	14,234	1,138,588	18,768	39,809	132,967	130,318	787,160
1930–31	2,293	1,733	78,986	14,386	791,354	11,093	21,118	52,412	99,749	585,670
1931–32	1,578	1,564	65,623	3,519	679,748	9,270	15,229	[3] 25,576	[4] 69,334	542,639
1932–33 [2]	1,386	1,346	40,013	1,805	686,462	8,182	14,275	17,700	71,213	560,299

Year beginning July	Beef and its products, total [5]	Oleo oil	Cotton lint [6]	Linters [6]	Cottonseed cake and meal	Linseed cake and meal	Prunes	Raisins	Apples, fresh	Oranges	Sugar raw and refined [7]
	1,000 pounds	*1,000 pounds*	*1,000 bales*	*1,000 bales*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 barrels*	*1,000 boxes*	*1,000 sh. tons*
1909–10	286,296	126,092	6,413	------	640,089	652,317	89,015	8,526	922	932	63
1910–11	265,924	138,697	8,068	------	804,597	559,675	51,031	18,660	1,721	1,179	28
1911–12	233,925	126,467	11,070	------	1,293,690	596,115	74,328	19,949	1,456	1,197	40
1912–13	170,208	92,850	9,125	------	1,128,092	838,120	117,951	28,121	2,150	1,063	22
1913–14	151,212	97,017	9,522	------	799,974	662,869	69,814	14,766	1,507	1,559	26
1914–15	394,991	80,482	8,581	226	1,479,065	524,794	43,479	24,845	2,352	1,759	275
1915–16	457,556	102,646	5,917	251	1,057,222	640,916	57,423	75,015	1,466	1,575	815
1916–17	423,674	67,110	5,702	474	1,150,160	536,984	59,645	51,993	1,740	1,850	625
1917–18	600,132	56,603	4,455	186	44,681	151,400	32,927	54,988	635	1,240	288
1918–19	591,302	59,292	5,442	84	311,624	202,788	59,072	84,150	1,576	1,402	558
1919–20	368,002	74,529	7,035	52	449,573	336,336	114,066	86,857	1,051	1,619	722
1920–21	203,815	106,415	5,570	53	454,701	391,264	57,461	24,492	2,665	2,001	292
1921–22	222,462	117,174	6,592	126	532,721	484,059	109,398	49,639	1,094	1,641	1,001
1922–23	194,912	104,956	5,205	48	454,350	574,612	79,229	93,962	1,756	1,799	375
1923–24	185,081	92,965	5,784	115	250,366	560,114	136,448	88,152	4,098	2,592	135
1924–25	190,366	105,145	8,239	200	885,375	691,126	171,771	90,783	3,201	2,197	251
1925–26	152,320	90,410	8,110	102	716,505	589,166	151,405	135,027	3,672	2,253	300
1926–27	151,531	92,720	11,281	278	990,516	625,121	175,544	152,337	7,098	3,340	114
1927–28	106,595	64,851	7,890	230	664,523	606,304	260,625	193,099	3,144	2,988	106
1928–29	101,303	63,187	8,520	219	571,200	645,120	273,051	221,756	7,014	4,223	128
1929–30	102,080	61,088	7,096	143	338,240	624,960	142,989	128,697	3,426	3,674	79
1930–31	98,379	54,960	7,048	132	87,360	304,640	296,254	125,100	6,780	3,984	70
1931–32	79,482	43,762	8,989	145	430,080	443,520	243,935	122,213	6,010	3,534	54
1932–33 [2]	73,999	39,632	8,647	218	302,400	241,920	182,354	112,507	4,585	3,391	41

[1] Includes canned, fresh, salted, or pickled pork, lard, neutral lard, lard oil, bacon, and hams, Wiltshire and Cumberland sides.
[2] Preliminary.
[3] Includes "Wiltshire sides," beginning January 1932.
[4] Wiltshire sides included with "Bacon."
[5] Includes canned, cured, and fresh beef, oleo oil, oleo stock, oleomargarine, tallow, and stearin from animal fats.
[6] Bales of 500 pounds gross; lint cotton and linters not separately reported prior to 1915.
[7] Includes maple sugar, 1919–33.

TABLE 445.—*Exports of selected domestic agricultural products, annual 1909–10 to 1932–33*—Continued

Year beginning July	Barley, including flour and malt [8]	Corn, including corn meal	Oats, including oatmeal	Rice, including flour, meal, and broken rice	Rye, including flour	Wheat, including flour	Tobacco, unmanufactured [9]	Glucose and grape sugar	Hops	Starch, including cornstarch
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 pounds*	*1,000 bushels*	*1,000 bushels*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1909–10	4,454	38,128	2,549	7,050	242	89,173	357,196	149,820	10,589	51,536
1910–11	9,507	65,615	3,846	15,575	40	71,338	355,327	181,963	13,105	158,239
1911–12	1,655	41,797	2,678	26,798	31	81,891	379,845	171,156	12,191	83,645
1912–13	17,874	50,780	36,455	24,801	1,855	145,159	418,797	200,149	17,591	110,898
1913–14	6,945	10,726	2,749	18,223	2,273	147,955	449,750	199,531	24,263	76,714
1914–15	28,712	50,668	100,609	75,449	13,027	335,702	348,346	158,463	16,210	107,037
1915–16	30,821	39,897	98,960	120,695	15,250	246,221	443,293	186,406	22,410	210,185
1916–17	20,319	66,753	95,106	181,372	13,703	205,962	411,599	214,973	4,825	146,424
1917–18	28,717	49,073	125,091	196,363	17,186	132,579	289,171	97,858	3,495	73,883
1918–19	26,997	23,019	109,005	193,128	36,467	287,402	629,288	136,230	7,467	143,788
1919–20	34,555	16,729	43,436	483,385	41,531	222,030	648,038	245,264	30,780	237,609
1920–21	27,255	70,906	9,391	440,855	47,337	369,313	506,526	141,954	22,206	135,365
1921–22	27,543	179,490	21,237	541,509	29,944	282,566	463,389	273,982	19,522	386,873
1922–23	21,909	96,596	25,413	370,670	51,663	224,900	454,364	162,693	13,497	260,796
1923–24	13,913	23,135	8,796	227,757	19,902	159,880	597,630	148,051	20,461	262,842
1924–25	28,543	9,791	16,777	112,037	50,242	260,803	430,702	139,577	16,122	214,247
1925–26	30,449	24,783	39,687	48,175	12,647	108,035	537,240	170,142	14,998	224,569
1926–27	19,655	19,819	15,041	304,358	21,697	219,160	516,401	148,789	13,369	233,111
1927–28	39,274	19,409	9,823	309,788	26,346	206,259	489,996	145,951	11,812	281,388
1928–29	60,295	41,876	16,251	392,684	9,488	163,687	565,925	123,366	8,836	235,660
1929–30	24,054	10,270	7,966	289,532	2,598	153,245	600,180	101,816	6,793	203,343
1930–31	11,443	3,317	3,123	281,005	227	131,475	591,035	70,571	5,593	104,807
1931–32	5,469	3,969	4,438	274,716	912	135,797	432,361	51,855	3,817	73,071
1932–33 [2]	9,399	8,775	5,361	177,715	311	41,211	399,967	41,829	2,431	52,969

Year beginning July	Cornstarch [10]	Apples, dried	Apricots, dried	Apricots, canned [11]	Pears, canned [11]	Peaches, canned [11]	Pineapples, canned [11]	Grapes	Pears, fresh [11]	Grapefruit, fresh
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 boxes*
1912–13		41,575	35,017							
1913–14		33,566	17,402							
1914–15		42,589	23,764							
1915–16		16,219	23,940							
1916–17		10,358	9,841							
1917–18	38,659	2,603	5,230							
1918–19	106,727	18,909	20,975							
1919–20	163,315	11,819	26,768							
1920–21	110,514	18,053	8,332							
1921–22	348,940	12,431	16,736					[12] 173		[12] 140
1922–23	254,060	12,817	11,193	[12] 13,809	49,358	54,624	21,848	14,022	36,785	252
1923–24	255,135	30,323	38,777	26,576	38,431	50,374	25,238	20,257	50,237	305
1924–25	209,865	19,225	13,292	31,360	53,851	57,390	26,252	20,302	41,452	427
1925–26	208,463	24,833	18,132	29,547	75,876	83,160	37,543	24,268	71,205	379
1926–27	212,375	32,670	17,901	35,896	66,104	81,896	37,426	30,791	73,877	613
1927–28	275,921	21,704	23,684	29,013	52,671	86,634	51,227	38,819	51,056	719
1928–29	231,667	50,024	24,652	26,249	82,652	101,438	47,533	55,638	82,847	940
1929–30	200,558	23,769	19,101	33,235	54,709	74,470	46,309	46,158	62,024	854
1930–31	102,886	38,120	23,647	19,024	74,355	75,763	35,308	49,799	134,670	1,222
1931–32	71,927	31,557	37,622	23,161	71,570	66,300	20,920	27,613	90,702	1,202
1932–33 [2]	52,350	36,601	34,268	19,504	60,762	74,999	15,923	29,352	119,987	902

[2] Preliminary.
[8] Includes barley flour 1919–22. Barley flour not separately reported prior to 1919 nor since 1922.
[9] Includes "Stems, trimmings, and scrap tobacco."
[10] Included with "Starch" prior to 1917–18.
[11] Given in value only prior to 1922–23.
[12] Jan. 1 to June 30.

Bureau of Agricultural Economics; compiled from Foreign Commerce and Navigation of the United States, 1909–18, and Monthly Summary of Foreign Commerce of the United States, June issues 1919–33. Conversion factors used: Corn meal, 1 barrel=4 bushels corn; oatmeal, 18 pounds=1 bushel oats; rye flour, 1 barrel=6 bushels rye; malt, 1.1 bushels=1 bushel barley; wheat flour, 1 barrel=1909–17, 4.7 bushels grain; 1918 and 1919, 4.5 bushels; 1920, 4.6 bushels; 1921–33, 4.7 bushels; apples, 3 boxes=1 barrel. The unit "1,000 pounds" in the columns of canned goods is presumed to be net weight, according to Government regulations.

TABLE 446.—*Imports of selected agricultural products, annual 1909–10 to 1932–33*

Year beginning July	Butter	Cheese	Beef and veal, fresh	Cattle hides: Wet	Cattle hides: Dry	Goatskins	Total hides and skins (except furs)	Silk [1]	Cotton, unmanufactured	Wool, unmanufactured, including mohair, etc.	Tobacco, unmanufactured
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1909–10	1,360	40,818	(2)	318,004		115,845	608,619	23,457	86,038	263,928	46,853
1910–11	1,008	45,569	(2)	95,498	54,630	86,914	374,891	26,666	113,768	137,648	48,203
1911–12	1,026	46,542	(2)	172,881	78,131	95,341	537,768	26,585	109,780	193,401	54,740
1912–13	1,162	49,388	(2)	185,447	82,595	96,250	572,197	32,101	121,852	195,293	67,977
1913–14	7,842	63,784	180,137	208,478	71,485	84,759	561,071	34,546	123,347	247,649	61,175
1914–15	3,828	50,139	184,491	241,340	93,001	66,547	538,218	31,053	185,205	308,083	45,809
1915–16	713	30,088	71,102	280,839	153,339	100,657	743,670	41,925	232,801	534,828	48,078
1916–17	524	14,482	15,217	225,363	161,237	105,640	700,207	40,351	147,062	372,372	49,105
1917–18	1,806	9,839	25,452	190,845	76,655	66,933	432,517	43,681	103,326	379,130	86,991
1918–19	4,131	2,442	36,670	220,695	33,182	89,005	448,142	50,069	103,592	422,415	83,951
1919–20	20,771	17,914	42,436	328,209	111,252	126,996	798,569	58,410	345,314	427,578	94,005
1920–21	34,344	16,585	41,956	173,759	24,814	41,728	352,193	34,778	125,939	318,236	58,923
1921–22	9,551	34,271	28,001	186,498	18,438	83,535	392,904	57,437	179,165	255,087	65,225
1922–23	15,772	54,555	32,481	346,613	58,770	89,401	682,893	63,188	236,092	525,473	75,786
1923–24	29,466	66,597	25,144	158,363	18,112	65,881	365,194	56,595	146,024	239,122	54,497
1924–25	7,189	61,489	12,419	184,934	14,376	65,956	387,447	70,270	155,092	284,706	76,870
1925–26	6,440	62,412	18,279	141,081	14,506	86,484	355,266	76,838	161,454	345,512	69,974
1926–27	10,710	89,782	22,098	145,651	11,287	83,571	368,876	85,162	190,963	271,128	92,983
1927–28	4,955	75,424	47,650	280,901	26,461	84,751	532,379	87,128	175,450	248,035	81,045
1928–29	3,299	84,606	62,481	202,489	13,859	94,486	447,384	90,662	227,454	270,937	79,284
1929–30	2,851	78,261	30,190	284,302	10,530	101,120	548,567	87,408	197,657	220,476	63,181
1930–31	1,329	57,972	3,551	87,526	3,581	80,830	265,854	87,861	51,192	149,557	75,425
1931–32	1,838	57,235	898	88,385	3,427	67,038	254,084	82,503	66,296	103,941	73,375
1932–33[3]	991	55,923	709	58,192	2,064	54,391	211,548	76,768	63,376	52,304	59,230

Year beginning July	Rubber and similar gums, crude	Coffee	Tea	Cocoa or cacao beans	Bananas	Olives	Lemons	Onions	Tomatoes, fresh	Beans, dry
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 bunches*	*1,000 gallons*	*1,000 boxes*	*1,000 bushels*	*1,000 pounds*	*1,000 bushels*
1909–10	154,621	871,470	85,626	108,668	38,157	4,555	2,165	1,024	(2)	1,015
1910–11	145,744	875,367	102,564	138,058	44,699	3,045	1,824	1,515	(2)	1,037
1911–12	175,966	885,201	101,407	145,969	44,521	5,077	1,968	1,436	(2)	1,005
1912–13	170,747	863,131	94,813	140,039	42,357	3,946	2,046	789	(2)	1,048
1913–14	161,777	1,001,528	91,131	176,268	48,684	5,316	(4)	1,115	(2)	1,634
1914–15	196,122	1,118,691	96,988	192,307	41,092	3,622	(4)	829	(2)	906
1915–16	304,183	1,201,104	109,866	243,232	36,755	5,938	(4)	816	(2)	663
1916–17	364,914	1,319,871	103,364	338,654	34,661	5,642	(4)	1,758	(2)	3,748
1917–18	414,984	1,143,891	151,315	399,040	34,550	2,385	(4)	1,313	(2)	4,146
1918–19	422,215	1,046,029	108,172	313,037	35,382	3,501	(4)	152	(2)	4,016
1919–20	660,610	1,414,228	97,826	420,331	36,848	5,206	(4)	1,884	(2)	3,806
1920–21	371,300	1,348,926	72,196	327,123	40,808	4,054	(4)	689	(2)	824
1921–22	578,512	1,238,012	86,142	317,124	46,120	(4)	1,373	2,488	(2)	520
1922–23	810,028	1,305,188	96,669	381,508	44,504	(4)	1,660	1,783	(2)	2,623
1923–24	633,489	1,429,617	105,443	382,971	44,935	6,848	1,018	1,406	[5] 50,838	886
1924–25	824,434	1,279,570	92,779	382,570	50,513	5,901	1,264	2,075	69,216	1,421
1925–26	962,659	1,437,364	99,411	417,060	58,550	5,992	1,247	2,194	82,448	1,271
1926–27	993,272	1,444,847	97,402	425,184	57,102	5,212	659	2,298	124,489	1,051
1927–28	959,245	1,535,392	90,099	411,543	64,029	6,458	1,308	1,399	113,357	2,465
1928–29	1,252,130	1,435,070	92,635	419,243	63,530	6,955	391	2,050	128,627	1,505
1929–30	1,157,817	1,562,058	86,368	421,938	65,909	8,452	1,229	918	139,886	2,534
1930–31	1,048,758	1,728,569	87,148	415,442	57,841	7,429	350	214	113,480	1,346
1931–32	1,098,501	1,628,841	90,459	434,853	51,785	7,057	176	665	122,215	222
1932–33[3]	789,186	1,458,161	94,808	476,421	45,114	4,674	146	73	59,028	157

See footnotes at end of table.

TABLE 446.—*Imports of selected agricultural products, annual 1909–10 to 1932–33*—Continued

Year beginning July	Almonds in terms of shelled [6]	Peanuts in terms of shelled [6]	Walnuts in terms of shelled [6]	Coconut meat [7]	Flaxseed	Sugar, raw and refined	Molasses	Jute and jute butts, unmanufactured	Manila or abaca	Sisal and henequen
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 bushels*	*1,000 short tons*	*1,000 gallons*	*1,000 long tons*	*1,000 long tons*	*1,000 long tons*
1909–10	18, 556	29, 276	33, 641	21, 306	5, 002	2, 047	31, 292	68	93	100
1910–11	15, 523	18, 834	33, 619	37, 817	10, 499	1, 969	23, 838	65	74	118
1911–12	17, 231	11, 248	37, 214	69, 912	6, 842	2, 052	28, 828	101	69	114
1912–13	13, 856	14, 989	17, 213	40, 870	5, 294	2, 370	33, 927	125	74	154
1913–14	15, 027	38, 726	20, 800	55, 735	8, 653	2, 533	51, 410	106	50	216
1914–15	13, 679	19, 338	20, 490	96, 485	10, 666	2, 710	70, 840	83	51	186
1915–16	14, 546	25, 407	23, 733	118, 613	14, 679	2, 817	85, 717	108	79	229
1916–17	19, 916	32, 385	23, 839	256, 801	12, 394	2, 666	110, 238	113	77	143
1917–18	20, 845	75, 463	16, 252	507, 576	13, 367	2, 452	130, 731	78	86	150
1918–19	25, 615	20, 425	9, 057	315, 749	8, 427	2, 918	130, 075	53	68	153
1919–20	28, 533	128, 390	28, 961	258, 229	23, 392	3, 798	154, 670	77	77	176
1920–21	15, 861	46, 202	15, 902	213, 134	16, 170	3, 506	113, 414	90	52	159
1921–22	28, 036	9, 678	35, 174	294, 104	13, 632	4, 232	87, 908	62	44	72
1922–23	24, 345	45, 013	25, 970	338, 597	25, 006	4, 367	161, 135	85	98	98
1923–24	24, 207	50, 683	26, 428	344, 920	19, 577	3, 765	174, 037	84	98	97
1924–25	22, 503	93, 191	36, 623	371, 961	13, 419	4, 337	215, 778	56	73	146
1925–26	19, 686	36, 026	31, 698	444, 278	19, 354	4, 420	256, 246	71	62	126
1926–27	15, 890	49, 792	31, 776	507, 136	24, 224	4, 420	260, 259	89	61	116
1927–28	18, 496	63, 783	20, 347	518, 173	18, 112	4, 045	248, 427	81	48	124
1928–29	18, 673	30, 412	24, 500	687, 121	23, 494	4, 753	296, 550	92	60	135
1929–30	19, 956	9, 941	20, 228	546, 888	19, 652	3, 641	253, 114	80	73	113
1930–31	13, 264	9, 002	17, 818	606, 087	7, 813	3, 287	217, 001	49	43	84
1931–32	8, 338	1, 536	13, 042	487, 223	13, 850	3, 264	205, 968	52	27	109
1932–33 [3]	4, 906	239	6, 759	530, 686	6, 213	2, 951	145, 450	38	25	166

Year beginning July	Milk and cream, fresh	Cream, fresh	Eggs, whole, in the shell	Eggs and egg yolks, dried, frozen, or prepared	Whole eggs, dried	Whole eggs, frozen	Yolks, dried	Yolks, frozen	Egg albumen, dried	Egg albumen, frozen, prepared, and preserved	Hair of the Angora (mohair)
	1,000 gallons	*1,000 gallons*	*1,000 dozen*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1912–13	(2)	1, 247	1, 367	228					(2)	--------	--------
1913–14	(2)	1, 773	6, 015	3, 420	--------	--------	--------	--------	(2)	--------	--------
1914–15	(2)	2, 077	3, 047	8, 572	--------	--------	--------	--------	(2)	--------	--------
1915–16	(2)	1, 194	733	6, 022	--------	--------	--------	--------	(2)	--------	--------
1916–17	(2)	744	1, 110	10, 318	--------	--------	--------	--------	(2)	--------	--------
1917–18	(2)	712	1, 619	14, 598	--------	--------	--------	--------	(2)	--------	--------
1918–19	2, 592	(2)	848	9, 085	--------	--------	--------	--------	(2)	--------	--------
1919–20	3, 989	(2)	1, 348	24, 091	--------	--------	--------	--------	(2)	--------	--------
1920–21	4, 391	(2)	3, 316	28, 768	--------	--------	--------	--------	(2)	--------	--------
1921–22	4, 536	(2)	1, 224	16, 540					7, 388		
1922–23	5, 148	(2)	535	14, 821	--------	--------	--------	--------	3, 213	--------	[8] 7, 220
1923–24	6, 623	[5] 1, 646	426	[9] 14, 830	[5] 544	[5] 1, 106	[5] 522	[5] 1, 210	6, 642	[5] 636	3, 583
1924–25	6, 418	4, 765	682	--------	1, 884	8, 751	4, 281	4, 151	3, 257	1, 106	2, 404
1925–26	7, 479	4, 798	276	--------	1, 365	12, 647	6, 004	5, 662	4, 490	5, 119	6, 463
1926–27	6, 106	5, 273	296	--------	1, 132	8, 114	4, 468	4, 601	3, 859	3, 967	6, 547
1927–28	5, 425	4, 819	256	--------	575	611	3, 486	1, 229	2, 361	553	2, 204
1928–29	5, 016	3, 173	291	--------	2, 133	12, 616	5, 130	4, 581	2, 898	610	3, 134
1929–30	3, 314	2, 474	337	--------	1, 839	9, 824	7, 819	3, 475	4, 363	9, 955	1, 073
1930–31	1, 190	844	301	--------	822	113	6, 069	1, 052	2, 219	2	474
1931–32	280	118	282	--------	543	2	1, 920	443	1, 722	(10)	0
1932–33 [3]	33	52	262	--------	19	(10)	1, 595	403	1, 424	--------	113

[1] Includes "Silk, raw or as reeled from cocoon," "Silk waste," and "Silk cocoons."
[2] Not separately classified.
[3] Preliminary.
[4] Reported in value only.
[5] Beginning Jan. 1, 1924.
[6] Conversion factors used: Almonds, 30 percent unshelled equals shelled. Peanuts, 3 pounds unshelled equals 2 pounds shelled. Walnuts, 42 percent unshelled equals shelled.
[7] Includes broken, or shredded, desiccated, or prepared, and copra.
[8] Beginning Sept. 22, 1922.
[9] July 1–Dec. 31, 1923.
[10] Less than 500.

Bureau of Agricultural Economics; compiled from Commerce and Navigation of the United States, 1909–18, and Monthly Summary of Foreign Commerce, June issues, 1919–33.

TABLE 447.—*Exports (domestic) of principal agricultural products from the United States, by countries, 1926–27 to 1932–33*

Article and country to which exported	Year ended June 30						
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33 [1]
ANIMAL PRODUCTS	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Butter:							
United Kingdom	0	20	5	20	80	(2)	1
Honduras	150	143	157	164	151	139	108
Panama	582	311	227	342	157	135	369
Mexico	859	724	672	617	426	179	128
Cuba	734	479	370	96	6	9	1
Haiti, Republic of	498	479	479	458	394	401	291
Other West Indies [3]	550	391	394	380	270	244	214
Colombia	163	143	164	122	61	23	12
Peru	356	358	451	371	67	57	14
Venezuela	381	190	264	329	269	119	45
Philippine Islands	187	190	152	210	154	84	83
Other countries	588	537	443	473	258	188	120
Total	5,048	3,965	3,778	3,582	2,293	1,578	1,386
Cheese:							
Panama	434	432	460	485	442	535	640
Mexico	670	581	423	506	293	133	69
Canada	350	259	170	176	179	84	44
Honduras	68	69	82	105	86	73	50
British Honduras	67	72	76	64	61	52	25
Cuba	832	359	405	170	72	143	56
Virgin Islands	62	65	70	65	54	62	59
Haiti, Republic of	86	80	72	58	59	51	26
Other West Indies [3]	331	186	218	129	94	69	72
China	252	145	89	45	29	39	36
Philippine Islands	110	146	130	134	143	158	150
Other countries	511	479	377	402	221	165	119
Total	3,773	2,873	2,572	2,339	1,733	1,564	1,346
Milk:							
Condensed:							
Total Europe	424	151	70	21	14	6	31
Cuba	12,843	11,462	13,103	13,196	3,651	1,378	360
Philippine Islands	6,471	7,575	7,339	7,347	7,566	5,817	1,382
Japan	4,029	5,385	5,473	4,701	4,167	3,543	0
Hong Kong	2,065	3,764	3,739	3,905	2,372	2,339	1,325
China	3,621	2,513	2,840	2,173	1,319	886	699
Mexico	1,308	985	883	1,055	605	281	224
Jamaica	754	467	523	380	612	595	1,073
Honduras	319	402	549	550	515	384	282
Costa Rica	566	595	746	524	370	208	129
Venezuela	369	439	550	480	452	298	176
Other countries	3,030	3,237	3,750	3,439	1,291	805	666
Total	35,799	36,975	39,565	37,771	22,934	16,540	6,347
Evaporated:							
United Kingdom	27,418	23,805	21,759	11,877	15,978	15,287	926
Other Europe	3,109	596	508	457	367	218	31
Total Europe	30,527	24,401	22,267	12,334	16,345	15,505	957
Philippine Islands	12,806	15,563	16,372	17,153	18,684	16,279	19,598
Panama	4,127	3,589	4,606	4,805	2,898	4,308	4,616
Peru	4,215	3,569	4,027	3,602	1,583	1,355	242
China	3,025	3,035	3,447	2,056	816	529	555
British Malaya	1,932	2,817	2,761	3,359	1,026	592	628
Cuba	2,958	2,647	2,272	2,935	486	207	179
Japan	1,616	2,466	2,544	2,785	2,867	2,446	184
Mexico	2,714	2,157	2,185	2,274	1,296	685	700
Netherland West Indies	672	834	1,488	1,765	988	1,235	1,373
Netherland East Indies	1,221	1,389	1,422	1,991	1,772	1,256	879
Siam	606	1,426	1,119	1,363	748	1,242	1,847
Newfoundland and Labrador	797	1,103	1,035	966	970	808	503
Other countries	5,927	6,972	7,349	6,413	5,573	2,636	1,405
Total	73,143	71,968	72,894	63,801	56,052	49,083	33,666

[1] Preliminary. [2] Less than 500. [3] Excludes Bermudas.

TABLE 447.—*Exports (domestic) of principal agricultural products from the United States, by countries, 1926–27 to 1932–33*—Continued

Article and country to which exported	Year ended June 30						
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33 [1]
ANIMAL PRODUCTS—continued							
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Bacon, including Cumberland sides: [4]							
United Kingdom	68,220	50,127	53,364	57,443	26,203	10,403	3,902
Germany	6,818	9,838	5,982	8,468	1,151	2,043	1,300
Italy	1,439	8,113	15,106	8,289	764	822	1,808
Finland	4,493	6,075	4,633	3,734	1,549	722	1,176
Norway	2,422	3,244	2,742	2,642	712	174	134
Sweden	5,061	4,689	3,649	4,648	3,264	946	1,416
Irish Free State	64	402	933	2,273	1,126	266	25
Netherlands	2,502	632	1,198	2,959	61	657	76
Other Europe	7,542	16,434	15,628	15,933	582	255	974
Total Europe	98,561	99,554	103,235	106,389	35,412	16,288	10,811
Cuba	21,070	19,107	16,698	15,957	12,399	7,128	4,629
Canada	4,584	5,173	5,769	5,617	2,388	650	270
Panama	228	341	401	499	421	330	388
Newfoundland and Labrador	1,181	731	626	557	372	278	270
Mexico	285	221	225	233	189	114	169
Other countries	1,634	1,840	2,291	2,418	1,231	788	1,223
Total	127,543	126,967	129,245	131,670	52,412	25,576	17,700
Hams and shoulders, including Wiltshire sides: [5]							
United Kingdom	124,391	104,020	100,959	103,169	81,294	58,126	61,647
Belgium	451	660	1,003	2,136	1,464	607	574
Other Europe	1,424	1,846	2,024	1,155	236	193	1,071
Total Europe	126,266	106,526	103,986	106,460	82,994	58,926	63,292
Cuba	6,548	8,167	7,435	6,307	4,272	4,559	3,181
Canada	4,803	6,134	6,309	11,370	5,895	694	225
Other countries	6,032	6,992	7,666	7,435	6,588	5,155	4,515
Total	143,649	127,819	125,396	131,572	99,749	69,334	71,213
Pork:							
Canned:							
United Kingdom	5,595	7,632	6,555	10,737	9,066	8,751	8,106
Other Europe	80	97	145	238	193	78	66
Total Europe	5,675	7,729	6,700	10,975	9,259	8,829	8,172
Philippine Islands	48	32	36	64	112	173	216
Canada	188	179	244	241	225	101	47
China	11	7	7	145	127	167	205
Panama	14	15	23	39	90	169	200
Other countries	795	652	964	1,319	739	580	396
Total	6,731	8,614	7,974	12,783	10,552	10,019	9,236
Fresh:							
United Kingdom	7,128	6,418	4,547	10,527	8,098	6,672	4,582
Other Europe	260	1,002	2,515	3,685	464	241	889
Total Europe	7,388	7,420	7,062	14,212	8,562	6,913	5,471
Cuba	1,763	1,557	1,732	1,618	424	161	47
Canada	590	798	582	1,091	410	72	18
Panama	420	558	444	753	771	1,430	1,844
Philippine Islands	143	194	288	239	222	257	255
Other countries	577	532	533	858	704	437	547
Total	10,881	11,059	10,641	18,771	11,093	9,270	8,182
Pickled:							
United Kingdom	3,857	5,184	7,608	5,094	2,945	1,585	1,130
Norway	394	722	854	799	364	210	230
Germany	134	289	366	328	89	54	37
Other Europe	416	821	1,420	1,194	327	279	471
Total Europe	4,801	7,016	10,248	7,415	3,725	2,128	1,868
Cuba	7,760	7,626	10,550	9,798	4,862	1,923	1,534
Canada	5,800	7,056	8,596	11,211	4,356	3,058	2,565
Newfoundland and Labrador	3,532	3,734	4,530	4,792	3,681	3,423	3,720
British West Indies and Bermudas	2,730	2,851	2,810	221	2,226	2,464	2,420
Haiti, Republic of	917	1,055	838	719	544	513	515
Other countries	2,422	2,312	2,334	5,677	1,724	1,720	1,654
Total	27,962	31,650	39,906	39,833	21,118	15,229	14,276

[1] Preliminary.
[4] Beginning July 1931, includes "Wiltshire sides."
[5] Beginning July 1931, "Wiltshire sides" included with "Bacon, including Cumberland sides."

TABLE 447.—*Exports (domestic) of principal agricultural products from the United States, by countries, 1926–27 to 1932–33*—Continued

Article and country to which exported	Year ended June 30						
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33 [1]
ANIMAL PRODUCTS—continued							
Lard:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
United Kingdom	222, 086	233, 564	229, 899	240, 147	256, 353	239, 358	255, 769
Germany	174, 621	176, 771	195, 695	180, 074	107, 317	142, 354	158, 226
Netherlands	46, 071	35, 784	36, 992	48, 584	26, 478	29, 980	42, 066
Italy	7, 642	20, 384	29, 200	19, 865	6, 064	7, 125	5, 646
Belgium	12, 718	14, 541	14, 841	18, 700	9, 406	5, 750	10, 150
Other Europe	26, 238	38, 144	49, 070	56, 031	14, 791	8, 799	12, 776
Total Europe	489, 376	519, 188	555, 697	563, 401	420, 409	433, 366	484, 633
Cuba	79, 599	78, 469	84, 316	79, 860	49, 004	38, 406	10, 023
Mexico	41, 963	52, 475	56, 728	68, 531	67, 491	35, 483	38, 085
Colombia	12, 623	15, 782	23, 375	19, 479	11, 836	4, 284	113
Canada	14, 888	16, 172	17, 864	15, 112	12, 224	6, 197	3, 482
Other countries	37, 363	34, 312	42, 934	40, 777	24, 706	24, 903	23, 963
Total	675, 812	716, 398	780, 914	787, 160	585, 670	542, 639	560, 299
Lard, neutral:							
Netherlands	5, 260	6, 784	4, 710	6, 260	3, 264	2, 554	1, 616
Germany	5, 895	5, 623	4, 023	3, 010	1, 421	1, 152	887
United Kingdom	3, 530	5, 096	3, 919	2, 320	1, 526	745	602
Norway	1, 039	1, 228	895	755	529	455	210
Denmark	726	1, 176	894	1, 379	1, 453	804	647
Sweden	912	696	649	787	766	765	471
Other Europe	921	1, 206	1, 463	1, 197	1, 015	916	1, 050
Total Europe	18, 283	21, 809	16, 553	15, 708	9, 974	7, 391	5, 483
Other countries	1, 774	1, 990	1, 762	1, 075	785	290	75
Total	20, 057	23, 799	18, 315	16, 783	10, 759	7, 681	5, 558
Oleo oil:							
Germany	25, 443	18, 267	16, 835	14, 630	13, 934	11, 570	11, 671
Netherlands	27, 270	17, 608	16, 744	22, 158	15, 868	11, 698	8, 808
United Kingdom	18, 691	16, 092	16, 328	11, 735	13, 179	9, 883	9, 825
Norway	5, 460	3, 596	2, 763	2, 549	2, 018	1, 500	1, 031
Greece	3, 972	454	602	750	1, 587	1, 519	461
Belgium	1, 875	1, 576	1, 780	1, 470	1, 837	1, 716	1, 964
Denmark	2, 691	2, 079	2, 062	2, 865	2, 408	2, 134	1, 654
Other Europe	2, 726	1, 939	2, 367	1, 883	1, 808	1, 415	1, 625
Total Europe	88, 128	61, 611	59, 481	58, 040	52, 639	41, 435	37, 039
Other countries	4, 592	3, 240	3, 706	3, 053	2, 322	2, 327	2, 593
Total	92, 720	64, 851	63, 187	61, 093	54, 961	43, 762	39, 632
VEGETABLE PRODUCTS							
Cotton, unmanufactured: [6]	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*	*1,000 bales*
Lint:							
Germany	2, 829	2, 090	1, 891	1, 770	1, 752	1, 629	1, 907
United Kingdom	2, 623	1, 443	1, 918	1, 306	1, 108	1, 314	1, 520
France	1, 063	904	841	860	986	487	895
Italy	841	708	765	705	495	673	833
Belgium	286	213	217	182	143	143	196
Spain	259	321	301	285	268	309	350
Netherlands	251	144	168	143	147	157	137
Other Europe	661	605	497	316	214	297	444
Total Europe	8, 813	6, 428	6, 598	5, 567	5, 113	5, 009	6, 282
Japan	1, 644	1, 007	1, 373	1, 071	1, 233	2, 396	1, 717
China	262	136	245	232	393	1, 143	352
Other countries	562	319	304	226	309	441	296
Total	11, 281	7, 890	8, 520	7, 096	7, 048	8, 989	8, 647
Linters: [6]							
Germany	154	132	120	70	56	59	76
France	26	36	32	26	27	24	34
United Kingdom	51	22	16	7	11	16	41
Belgium	12	7	12	8	5	1	14
Other Europe	15	15	18	14	14	16	25
Total Europe	258	212	198	125	113	116	190
Canada	20	18	19	17	16	14	13
Other countries	0	1	2	1	3	15	15
Total	278	231	219	143	132	145	218

[1] Preliminary.

[6] Bales of 500 pounds gross.

TABLE 447.—*Exports (domestic) of principal agricultural products from the United States, by countries, 1926–27 to 1932–33*—Continued

Article and country to which exported	Year ended June 30						
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33 [1]
VEGETABLE PRODUCTS—continued							
Fruits:							
Dried:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Apples:							
Germany	12,158	10,877	22,085	11,425	18,470	12,055	17,835
Netherlands	9,568	3,315	12,451	4,323	8,763	8,154	7,569
Sweden	2,278	2,524	2,985	3,015	1,846	2,501	4,043
Denmark	1,371	1,384	1,674	894	1,161	1,429	1,205
United Kingdom	2,282	1,018	2,618	1,522	1,755	2,198	1,366
Other Europe	3,656	1,617	6,995	1,880	5,598	4,656	4,001
Total Europe	31,313	20,735	48,808	23,059	37,593	30,993	36,019
Other countries	1,357	969	1,216	710	528	564	582
Total	32,670	21,704	50,024	23,769	38,121	31,557	36,601
Apricots:							
Germany	4,593	6,512	7,742	6,091	8,695	11,798	10,790
Netherlands	3,316	4,651	3,750	2,493	2,933	3,913	2,812
United Kingdom	2,084	1,964	1,422	1,019	1,243	2,789	3,170
Belgium	1,038	1,374	1,691	891	1,932	2,007	1,766
Norway	945	1,260	988	1,327	786	1,389	1,132
Sweden	952	994	776	939	835	1,151	1,212
Denmark	1,962	2,469	1,959	2,066	2,290	3,369	1,453
France	409	1,273	3,015	1,310	2,458	7,139	8,250
Other Europe	477	661	936	728	820	1,370	888
Total Europe	15,776	21,158	22,279	16,864	21,992	34,925	31,473
Canada	1,257	1,920	1,614	1,431	1,036	1,833	1,942
Other countries	868	606	759	806	619	864	853
Total	17,901	23,684	24,652	19,101	23,647	37,622	34,268
Prunes:							
Germany	38,553	79,732	77,883	44,789	97,631	62,539	34,858
United Kingdom	40,173	45,601	40,836	28,143	39,824	42,757	31,610
France	27,217	27,390	59,822	9,298	46,571	46,882	41,019
Netherlands	10,242	23,140	17,286	5,584	18,903	9,309	7,611
Sweden	6,854	7,047	5,434	6,744	8,712	8,788	6,803
Italy	1,368	5,533	7,700	2,867	15,851	13,262	6,236
Denmark	6,136	9,992	6,611	6,034	9,426	7,985	6,605
Belgium	6,019	9,402	9,885	3,387	9,614	6,652	6,397
Norway	2,590	5,036	3,685	3,019	5,313	5,063	4,561
Other Europe	6,558	10,701	11,652	6,992	15,970	14,935	11,565
Total Europe	145,710	223,574	240,794	116,857	267,815	218,172	157,265
Canada	20,454	23,272	18,965	16,187	16,456	17,161	15,107
Other countries	9,380	13,779	13,292	9,945	11,983	8,602	9,982
Total	175,544	260,625	273,051	142,989	296,254	243,935	182,354
Raisins:							
United Kingdom	49,991	70,034	71,375	36,443	40,293	48,458	47,466
Germany	16,039	18,733	23,022	14,059	14,628	16,899	15,494
Netherlands	13,857	18,598	24,278	7,436	8,827	7,315	4,553
Denmark	1,994	1,593	2,244	1,286	1,385	1,834	1,770
Belgium	4,315	5,543	6,074	2,268	2,773	2,904	1,254
France	2,144	3,496	4,455	2,750	3,303	3,507	4,073
Sweden	6,065	10,285	14,782	9,639	10,510	8,916	8,383
Other Europe	3,309	3,643	6,555	3,734	3,221	4,577	5,786
Total Europe	97,714	131,925	152,785	77,615	84,940	94,410	88,779
Canada	37,400	40,148	39,635	28,668	22,894	14,576	9,295
China	3,549	4,144	7,574	4,791	1,816	1,627	1,717
Japan	2,801	3,086	2,961	2,992	2,140	1,922	1,489
Other countries	10,873	13,796	18,801	14,631	13,310	9,678	11,227
Total	152,337	193,099	221,756	128,697	125,100	122,213	112,507

[1] Preliminary

TABLE 447.—*Exports (domestic) of principal agricultural products from the United States, by countries, 1926–27 to 1932–33*—Continued

Article and country to which exported	Year ended June 30						
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33 [1]
VEGETABLE PRODUCTS—continued							
Fruits—Continued.							
Fresh:	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels* [7]	*1,000 barrels* [7]
Apples:							
United Kingdom	3,305	1,004	1,720	953	954	1,893	1,048
Germany	361	27	236	50	404	73	225
Netherlands	141	2	201	17	334	49	50
Belgium	80	1	321	14	313	189	132
France	4	(2)	62	8	131	367	35
Denmark	151	42	81	41	65	73	19
Other Europe	112	108	165	126	67	117	103
Total Europe	4,154	1,184	2,786	1,209	2,268	2,761	1,612
Other countries	329	165	219	218	211	57	42
Total	4,483	1,349	3,005	1,427	2,479	2,818	1,654
	1,000 boxes	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes* [7]	*1,000 boxes* [7]
United Kingdom	3,723	2,709	4,836	2,655	3,991	3,475	2,429
Germany	1,237	737	2,695	946	3,476	1,988	2,222
Netherlands	670	72	1,687	272	2,417	1,303	1,660
France	6	1	77	49	677	913	883
Other Europe	506	506	762	549	824	771	554
Total Europe	6,142	4,025	10,057	4,471	11,385	8,450	7,748
Canada	730	542	636	500	475	238	113
Argentina	155	227	336	294	261	167	91
Brazil	172	115	212	224	170	127	128
Philippine Islands	120	88	150	88	112	105	104
Other countries	525	387	635	421	501	380	320
Total	7,844	5,384	12,026	5,998	12,904	9,467	8,504
Lemons:							
Canada	287	154	228	132	210	209	117
New Zealand	18	14	16	9	10	3	1
China	14	11	13	10	8	7	6
Japan	13	15	17	18	19	22	12
Philippine Islands	8	5	7	6	7	6	5
Hong Kong	3	3	2	2	2	3	2
Panama	2	2	2	3	2	2	1
Other countries	22	10	17	9	10	6	6
Total	367	214	302	189	268	258	150
Oranges:							
United Kingdom	403	402	709	796	669	628	787
Canada	2,636	2,346	3,151	2,568	2,873	2,470	2,082
Other countries	301	240	363	310	442	436	522
Total	3,340	2,988	4,223	3,674	3,984	3,534	3,391
Grapefruit:							
United Kingdom	310	333	561	496	741	692	534
Canada	264	349	335	308	408	453	328
Germany	8	6	8	10	23	13	5
France	4	4	4	5	7	6	9
Other countries	27	27	32	35	43	38	26
Total	613	719	940	854	1,222	1,202	902
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Canned fruit, total:							
United Kingdom	203,016	177,256	236,754	203,151	215,575	215,843	209,315
Other Europe	29,691	38,539	47,646	40,171	26,667	23,592	21,114
Total Europe	232,707	215,795	284,400	243,322	242,242	239,435	230,429
Canada	15,491	17,993	22,769	20,438	13,693	2,203	1,635
Other countries	22,172	22,088	22,654	19,957	15,161	8,187	6,519
Total	270,370	255,876	329,823	283,717	271,096	249,825	238,583

[1] Preliminary.
[2] Less than 500.
[7] Excludes a small amount of apples exported in baskets.

TABLE 447.—*Exports (domestic) of principal agricultural products from the United States, by countries, 1926–27 to 1932–33*—Continued

Article and country to which exported	Year ended June 30						
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33 [1]
VEGETABLE PRODUCTS—continued							
Grain and grain products:	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Barley (grain):							
Germany	2,066	11,599	13,085	1,521	0	77	123
United Kingdom	8,981	10,151	13,161	9,370	8,670	4,237	6,607
Netherlands	815	2,581	3,909	479	8	234	175
Belgium	1,576	642	1,782	651	775	171	1,734
Other Europe	816	634	749	756	537	162	12
Total Europe	14,254	25,607	32,686	12,777	9,990	4,881	8,651
Canada	2,184	10,453	23,886	8,144	9	116	360
Other countries	606	520	424	623	303	87	144
Total	17,044	36,580	56,996	21,544	10,302	5,084	9,155
Corn (grain):							
Netherlands	560	4,311	7,977	126	50	65	759
Germany	2	2,520	4,241	0	69	114	156
United Kingdom	1,268	1,885	8,237	20	8	322	1,001
Denmark	563	845	896	0	1	0	197
Canada	10,536	6,454	11,082	7,390	1,414	2,681	5,183
Cuba	2,016	1,021	765	226	18	2	47
Mexico	2,124	323	572	1,297	823	7	8
Other countries	494	1,015	6,974	295	146	153	842
Total	17,563	18,374	40,744	9,354	2,529	3,344	8,193
Oats (grain):							
United Kingdom	1,259	645	1,177	13	0	0	45
Belgium	352	123	257	0	0	0	82
Germany	297	115	0	0	0	0	0
France	239	44	141	0	0	0	0
Other Europe	385	316	1,620	2	0	2	[8] 595
Total Europe	2,532	1,243	3,195	15	0	2	722
Canada	5,198	3,426	6,501	3,913	680	1,952	2,977
Cuba	1,170	1,028	861	490	61	352	223
Mexico	132	98	51	44	35	34	33
Other countries	213	239	240	173	131	139	130
Total	9,245	6,034	10,848	4,635	907	2,479	4,085
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Oatmeal:							
United Kingdom	18,885	14,447	23,775	8,358	4,833	8,990	2,537
Finland	13,219	9,471	17,335	8,441	431	2,569	1
Netherlands	25,930	7,485	14,525	7,804	9,479	6,658	5,864
Belgium	4,736	2,890	3,064	801	1,955	1,775	1,536
Other Europe	12,036	5,456	9,249	2,637	1,160	1,300	1,494
Total Europe	74,806	39,749	67,948	28,041	17,858	21,292	11,432
South America	1,164	9,757	11,389	10,431	8,093	5,101	4,142
Mexico	4,027	3,739	3,802	4,054	3,202	1,640	1,423
Canada	1,913	3,582	1,556	5,402	1,046	812	694
British India	850	1,770	1,594	2,013	1,400	926	44
Other countries	21,574	9,595	10,956	10,012	8,287	5,483	5,228
Total	104,334	68,192	97,245	59,953	39,886	35,254	22,963
Rice (grain):							
Germany	36,917	35,851	43,799	37,915	34,527	41,670	29,855
United Kingdom	33,675	35,459	41,812	35,854	32,364	35,716	15,534
Belgium	18,764	12,778	23,167	8,959	14,735	11,994	10,244
France	5,169	12,388	16,065	13,419	18,187	22,190	19,095
Netherlands	17,386	23,660	19,427	15,080	18,155	11,672	8,810
Greece	4,331	1,574	6,739	4,662	8,479	12,302	2,479
Sweden	1,255	4,801	7,590	2,838	4,103	4,157	3,139
Denmark	1,822	3,267	6,770	3,861	2,397	2,574	1,970
Other Europe	2,595	4,041	7,748	9,161	9,743	10,397	4,206
Total Europe	121,914	133,819	173,117	131,749	142,690	152,672	95,332
South America	24,847	41,205	78,719	69,297	54,899	17,618	14,373
Central America	3,468	5,888	5,852	5,031	4,607	2,678	1,696
Japan	68,518	2,020	14,609	935	378	363	53
Canada	7,525	14,227	19,800	18,239	17,342	20,323	12,253
Other countries	8,276	33,273	21,308	9,908	4,633	20,819	12,199
Total	234,548	230,432	313,405	235,159	224,549	214,473	135,906

[1] Preliminary. [8] Exports to Netherlands.

TABLE 447.—*Exports (domestic) of principal agricultural products from the United States, by countries, 1926–27 to 1932–33*—Continued

Article and country to which exported	Year ended June 30						
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33 [1]
VEGETABLE PRODUCTS—continued							
Grain and grain products—Continued	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Rye (grain):							
United Kingdom	2,345	1,710	1,174	21	0	0	0
Netherlands	1,768	1,408	868	0	21	278	167
Germany	1,577	1,245	364	21	0	290	0
Denmark	510	466	406	69	48	54	28
Norway	489	298	57	3	0	0	0
France	289	145	13	11	17	0	0
Belgium	441	135	9	0	41	0	0
Italy	0	0	0	0	40	0	0
Other Europe	66	567	490	17	1	0	0
Total Europe	7,485	5,974	3,381	142	168	622	195
Canada	14,118	20,080	5,913	2,347	0	223	116
Other countries	10	10	52	49	11	7	(2)
Total	21,613	26,064	9,346	2,538	179	852	311
Wheat (grain):							
United Kingdom	39,341	36,574	16,276	23,931	17,863	15,112	1,558
Netherlands	17,131	11,559	5,149	6,197	6,943	8,681	700
Italy	10,407	10,450	5,047	905	3,675	1,441	398
Belgium	8,926	8,797	3,232	6,314	7,394	10,707	2,372
Germany	7,287	5,582	1,674	4,769	1,722	3,530	263
France	16,079	5,127	2,215	2,214	7,859	6,148	1,121
Greece	4,816	2,819	3,592	7,009	3,379	11,149	3,149
Irish Free State	4,282	3,118	3,551	3,088	2,146	1,180	1,065
Other Europe	2,929	5,177	5,909	2,252	991	573	59
Total Europe	111,198	89,203	46,645	56,679	51,972	58,521	10,685
Canada	26,793	45,563	41,190	16,777	12,493	5,799	492
Japan	7,336	6,304	3,782	9,185	3,063	1,646	118
China	1,099	0	1,241	140	1,872	14,350	0
Other countries	9,824	4,929	10,256	9,394	6,965	16,205	[9] 9,592
Total	156,250	145,999	103,114	92,175	76,365	96,521	20,887
	1,000 barrels	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*	*1,000 barrels*
Wheat flour:							
Netherlands	1,568	1,530	1,084	1,031	1,297	178	138
United Kingdom	1,733	1,224	886	1,560	1,378	775	91
Germany	834	534	312	452	243	145	25
Greece	282	113	49	30	12	7	1
Irish Free State	94	62	39	145	155	117	69
Denmark	439	528	423	535	508	284	53
Finland	480	482	400	341	282	139	27
Norway	336	324	259	363	313	273	177
Other Europe	297	296	256	283	358	120	107
Total Europe	6,063	5,093	3,708	4,740	4,546	2,038	688
Cuba	1,199	1,216	1,204	1,199	968	871	738
Other West Indies [3]	747	676	809	663	590	550	436
Hong Kong	618	929	868	752	843	680	427
Brazil	904	873	831	780	671	113	61
China	418	790	1,242	553	955	1,740	133
Philippine Islands	666	727	802	730	640	630	562
Central America	613	697	752	684	658	596	503
Kwantung	189	136	428	891	382	96	30
Venezuela	175	201	248	295	254	242	166
Egypt	337	173	220	205	185	163	131
Other countries	1,456	1,310	1,776	1,502	1,034	638	449
Total	13,385	12,821	12,888	12,994	11,726	8,357	4,324
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Hops:							
United Kingdom	4,559	6,121	4,175	3,255	2,745	2,359	1,145
Belgium	1,892	255	129	93	77	37	41
Irish Free State	702	583	974	613	795	769	855
Other Europe	2,225	759	59	40	111	10	0
Total Europe	9,378	7,718	5,337	4,001	3,728	3,175	2,041
Canada	2,772	3,168	2,838	2,522	1,685	566	189
Other countries	1,219	926	661	270	180	76	201
Total	13,369	11,812	8,836	6,793	5,593	3,817	2,431

[1] Preliminary. [2] Less than 500. [3] Excludes Bermudas. [9] Includes 9,106,000 bushels to Brazil.

TABLE 447.—*Exports (domestic) of principal agricultural products from the United States by countries, 1926–27 to 1932–33*—Continued

Article and country to which exported	Year ended June 30						
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33 [1]
VEGETABLE PRODUCTS—continued							
Oil cake and oil-cake meal:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Cottonseed cake:							
Denmark	345,747	450,524	319,596	168,488	67,820	281,015	213,145
Germany	215,887	58,778	49,844	39,505	0	28,054	5,423
Other Europe	23,892	17,611	25,790	3,371	21	13,652	1,691
Total Europe	585,526	526,913	395,230	211,364	67,841	322,721	220,259
Other countries	13,922	110	27	202	2,918	179	101
Total	599,448	527,023	395,257	211,566	70,759	322,900	220,360
Cottonseed meal:							
United Kingdom	150,699	45,844	60,084	46,955	3,297	30,180	8,261
Germany	127,687	39,157	46,312	19,752	0	18,947	36,055
Norway	28,746	11,655	10,192	1,019	112	21,056	10,024
Irish Free State	18,638	5,611	9,708	14,305	0	12,795	5,600
France	689	493	4,048	2,296	1,120	1,400	1,456
Netherlands	25,299	12,356	16,990	7,417	168	3,620	6,350
Belgium	8,404	4,360	7,892	3,261	1,010	3,214	6,341
Other Europe	458	7,282	7,513	3,143	1	4,081	2
Total Europe	360,620	126,758	162,739	98,148	5,708	95,293	74,089
Canada	22,177	9,686	12,956	26,347	8,543	8,776	4,428
Other countries	8,271	1,054	1,720	4,112	2,247	3,303	4,002
Total	391,068	137,498	177,415	128,607	16,498	107,372	82,519
Linseed or flaxseed cake:							
Netherlands	381,104	305,321	371,385	323,537	141,505	206,188	114,762
Belgium	171,487	235,883	204,205	184,988	89,849	139,637	100,509
United Kingdom	45,522	38,698	40,392	48,745	42,495	21,728	2,258
Other Europe	11,281	9,151	8,104	42,116	15,306	54,754	8,631
Total Europe	609,394	589,053	624,086	599,386	289,155	422,307	226,160
Other countries	126	121	827	2,433	591	1,035	414
Total	609,520	589,174	624,913	601,819	289,746	423,342	226,574
Cottonseed oil:							
Canada	37,683	49,407	20,550	24,666	9,152	28,572	29,634
Mexico	3,868	5,318	2,374	947	3,954	450	2,062
Cuba	2,770	2,033	1,836	2,448	9,855	7,797	5,388
Argentina	2,160	1,108	912	253	94	3	22
Japan	925	831	911	1,179	1,146	1,602	3,543
Panama	742	719	788	1,063	768	900	1,007
Other countries	9,432	2,054	2,160	1,442	1,384	1,661	2,771
Total	57,580	61,470	29,531	31,998	26,353	40,985	44,427
Seeds, field or garden:							
Alfalfa:							
France	470	30	3	2	0	1	1,362
Denmark	231	206	(2)	52	37	45	0
Russia	187	1	1	3	0	60	0
Sweden	11	28	(2)	0	10	(2)	0
Other Europe	15	7	4	7	4	5	107
Total Europe	914	272	8	64	51	111	1,469
Mexico	342	556	429	481	285	92	246
Canada	26	81	339	512	6	(2)	(2)
Other countries	7	33	41	22	14	10	11
Total	1,289	942	817	1,079	356	213	1,726
Clover, red:							
United Kingdom	92	334	6	254	8	166	43
Germany	56	166	171	102	222	40	37
France	35	13	1	21	10	0	0
Netherlands	4	2	30	91	8	0	0
Denmark	(2)	17	40	38	7	0	0
Other Europe	0	10	12	16	4	0	0
Total Europe	187	542	260	522	259	206	80
Canada	688	385	54	171	374	122	85
New Zealand	1	8	7	0	(2)	1	53
Japan	0	1	1	16	5	13	20
Other countries	0	17	5	2	1	1	(2)
Total	876	953	327	711	639	343	238

[1] Preliminary. [2] Less than 500.

TABLE 447.—*Exports (domestic) of principal agricultural products from the United States, by countries, 1926–27 to 1932–33*—Continued

Article and country to which exported	Year ended June 30						
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33 [1]
VEGETABLE PRODUCTS—continued							
Seeds, field or garden—Continued.	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Timothy:							
United Kingdom	2,774	2,928	668	1,841	2,054	2,428	1,365
Germany	2,336	2,942	352	226	391	483	179
Denmark	726	1,425	394	259	147	331	39
France	329	202	63	29	1	235	8
Netherlands	272	217	84	97	45	166	83
Belgium	117	137	22	18	22	130	0
Other Europe	175	454	306	445	67	54	136
Total Europe	6,729	8,305	1,889	2,915	2,727	3,827	1,810
Canada	7,111	8,838	6,502	8,868	10,637	9,768	3,354
New Zealand	187	440	194	252	171	277	263
Other countries	33	95	51	76	60	76	54
Total	14,060	17,678	8,636	12,111	13,595	13,948	5,481
Sugar, refined: [10]	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
United Kingdom	37,069	35,460	23,507	25,224	23,111	23,613	21,480
Norway	14,912	12,579	14,389	5,733	1,735	2,612	3,072
France	4,523	1,050	1,526	1,347	1,636	569	586
Netherlands	2,772	4,338	4,839	5,435	4,689	4,341	4,616
Denmark	206	192	829	1,013	1,445	1,366	325
Belgium	(11)	421	493	491	686	610	798
Other Europe	7,200	6,567	780	435	385	767	1,634
Total Europe	66,682	60,607	46,363	39,678	33,687	33,878	32,511
Uruguay	18,748	12,692	25,647	5,966	6,643	2,590	89
West Indies and Bermudas	3,970	4,816	5,587	4,962	5,331	3,644	1,942
British Africa	5,365	4,921	12,147	6,474	6,110	3,793	478
Canada	1,892	3,711	6,501	3,637	2,295	1,222	592
Mexico	3,898	1,703	4,818	4,324	747	236	244
Panama	2,089	2,000	2,439	3,146	3,958	5,041	3,234
Newfoundland and Labrador	509	620	2,342	301	2,331	1,501	455
Colombia	1,962	6,812	13,396	6,107	4,740	292	84
New Zealand	0	2	4	1,080	1,428	225	272
Philippine Islands	234	251	744	755	874	513	(11)
Chile	2,043	1,876	2,368	627	278	94	1
Other countries	6,692	5,545	5,521	1,565	1,796	1,044	810
Total	114,084	105,556	127,877	78,622	70,218	54,073	40,712
Tobacco, leaf:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Flue-cured:							
United Kingdom	134,886	157,506	171,515	186,583	184,448	129,399	131,807
Germany	11,105	13,378	13,841	8,150	12,274	7,610	4,052
Netherlands	6,941	8,367	9,392	7,267	7,624	9,688	4,812
Belgium	1,037	2,758	3,927	2,190	3,589	3,229	2,679
Other Europe	9,775	10,072	11,878	30,475	16,959	12,205	8,872
Total Europe	163,744	192,081	210,553	234,665	224,894	162,131	152,222
China [12]	71,760	68,842	131,254	128,144	143,989	77,433	76,607
Australia	19,307	21,488	18,146	19,492	23,173	11,007	8,693
Canada	11,984	14,049	14,601	13,660	11,210	10,680	7,487
Japan	8,553	11,555	14,564	10,395	11,604	4,128	4,735
British India	4,538	5,031	5,884	3,874	1,162	3,721	3,293
Other countries	8,785	15,878	18,947	19,712	16,656	16,388	16,625
Total	288,671	328,924	413,949	429,942	432,688	285,488	269,662

[1] Preliminary.
[10] Tons of 2,000 pounds each.
[11] Less than one-half ton.
[12] Includes Hong Kong and Kwantung.

Bureau of Agricultural Economics, Foreign Agricultural Service. Compiled from Monthly Summary of Foreign Commerce of the United States, January and June issues, 1927–32, and official records of the Bureau of Foreign and Domestic Commerce.

TABLE 448.—*Imports of principal agricultural products into the United States, by countries, 1926–27 to 1932–33*

Article and country from which imported	Year ended June 30						
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33 [1]
ANIMALS AND ANIMAL PRODUCTS							
Cattle:	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
Mexico	99	204	309	226	56	79	92
Canada	168	343	256	192	26	24	8
Other countries	0	1	1	1	1	(2)	(2)
Total	267	548	566	419	83	103	100
Butter:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
United Kingdom	3,932	870	58	171	17	38	129
Denmark	1,529	761	902	1,109	172	210	124
Other Europe	192	453	279	38	26	34	106
Total Europe	5,653	2,084	1,239	1,318	215	282	359
New Zealand	3,682	2,396	1,674	1,141	877	729	547
Canada	610	275	237	142	162	709	64
Other countries	765	200	149	250	75	118	21
Total	10,710	4,955	3,299	2,851	1,329	1,838	991
Cheese, Emmenthaler (Swiss): [3]							
Switzerland	-------	-------	-------	[4] 934	13,571	11,211	10,492
Denmark	-------	-------	-------	[4] 40	594	661	518
Germany	-------	-------	-------	[4] 48	497	813	420
Other countries	-------	-------	-------	[4] 120	1,110	883	874
Total	-------	-------	-------	[4] 1,142	15,772	13,568	12,304
Cheese, other than Swiss: [5]							
Italy	36,572	31,332	38,337	36,958	29,307	30,296	30,398
France	4,923	5,874	6,243	6,035	3,860	4,333	3,775
Netherlands	3,687	3,736	3,525	2,915	2,334	2,435	2,177
Switzerland	20,638	16,449	19,731	16,452	3,607	1,463	1,516
Other Europe	6,634	5,983	6,052	8,469	1,994	3,145	3,936
Total Europe	72,454	63,374	73,888	70,829	41,102	41,672	41,802
Canada	16,609	11,439	9,381	5,895	818	1,366	1,109
Other countries	719	611	1,337	396	280	629	708
Total	89,782	75,424	84,606	77,120	42,200	43,667	43,619
Eggs in the shell:	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*	*1,000 dozen*
Hong Kong	219	199	236	250	263	248	206
China	6	40	28	15	19	20	14
Canada	54	13	13	60	15	13	6
Other countries	17	4	14	12	4	1	36
Total	296	256	291	337	301	282	262
Eggs and egg yolks, dried, frozen and preserved:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
China	14,825	5,409	20,582	18,206	7,918	2,745	2,016
United Kingdom	3,357	248	3,285	4,498	76	84	0
Other countries	133	244	593	253	62	79	1
Total	18,315	5,901	24,460	22,957	8,056	2,908	2,017
Egg albumen:							
China	6,907	2,836	3,431	4,868	2,208	1,654	1,424
Other countries	919	78	77	450	13	68	(2)
Total	7,826	2,914	3,508	5,318	2,221	1,722	1,424
Silk, raw, in skeins reeled from cocoon:							
Japan	59,934	64,673	63,415	61,243	67,309	69,423	67,098
China	11,872	9,816	12,326	12,717	10,432	5,258	3,072
Other countries	1,596	1,269	1,455	3,733	4,038	3,168	3,254
Total	73,402	75,758	77,196	77,693	81,779	77,849	73,424

[1] Preliminary.
[2] Less than 500.
[3] Included with "cheese, other than Swiss" prior to June 18, 1930.
[4] June 18 to June 30.
[5] Includes "Swiss cheese" prior to June 18, 1930.

TABLE 448.—*Imports of principal agricultural products into the United States, by countries, 1926–27 to 1932–33*—Continued

Article and country from which imported	Year ended June 30						
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33 [1]
ANIMALS AND ANIMAL PRODUCTS—con.							
Wool, unmanufactured:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Carpet wool:							
United Kingdom	51, 602	32, 423	33, 861	23, 326	14, 085	9, 159	9, 435
China	36, 362	55, 998	53, 589	36, 931	33, 603	18, 720	7, 773
Argentina	9, 513	8, 924	19, 820	24, 405	25, 567	20, 428	11, 827
British India	6, 906	10, 811	14, 390	11, 106	5, 163	9, 430	4, 309
Palestine and Syria	8, 064	8, 420	3, 953	10, 460	4, 388	3, 970	1, 186
Iraq	4, 115	6, 550	6, 349	7, 481	4, 210	6, 037	1, 685
Egypt	1, 650	2, 191	3, 765	3, 714	2, 351	2, 022	1, 769
Italy	4, 532	4, 056	3, 668	3, 053	2, 772	2, 627	1, 312
Irish Free State	1, 729	1, 580	2, 134	2, 126	490	1, 427	1, 354
Germany	2, 876	2, 814	3, 260	3, 250	2, 622	1, 828	1, 299
France	5, 371	5, 414	4, 470	4, 260	1, 814	1, 078	401
Switzerland	2, 132	1, 515	1, 509	1, 506	1, 173	1, 002	55
Other countries	9, 846	4, 793	13, 945	9, 493	5, 023	3, 731	1, 614
Total	144, 698	145, 489	164, 713	141, 111	103, 261	81, 459	44, 019
Clothing wool:							
United Kingdom	4, 775	4, 169	2, 499	1, 807	1, 800	1, 084	516
Australia	3, 797	5, 515	5, 936	5, 690	2, 871	3, 489	285
Canada	2, 353	2, 838	1, 601	1, 129	312	75	25
Argentina	2, 843	2, 545	1, 872	2, 300	354	96	3
Chile	1, 186	1, 677	1, 625	1, 094	361	1	0
New Zealand	662	1, 670	2, 081	3, 514	366	1, 411	46
Uruguay	497	213	1, 062	1, 275	143	23	0
Other countries	657	747	1, 732	2, 047	352	1, 032	149
Total	16, 770	19, 374	18, 408	18, 856	6, 559	7, 211	1, 024
Combing wool:							
United Kingdom	15, 484	17, 344	12, 319	8, 784	2, 933	2, 114	2, 423
Australia	38, 714	21, 992	17, 906	14, 911	22, 018	9, 636	2, 243
Argentina	15, 265	11, 424	12, 875	10, 674	1, 898	193	(2)
Uruguay	17, 751	6, 962	20, 341	11, 815	4, 553	583	282
New Zealand	5, 192	8, 260	8, 577	3, 093	2, 065	413	851
Union of South Africa	4, 488	4, 566	2, 913	925	2, 715	1, 172	149
Canada	3, 599	6, 122	5, 314	5, 057	396	926	677
Other countries	2, 415	3, 612	3, 233	3, 215	2, 150	93	43
Total	102, 908	80, 282	83, 478	58, 474	38, 728	15, 130	6, 668
Hair of the Angora goat (mohair), alpaca:							
United Kingdom	792	541	384	391	350	50	318
Turkey (Europe and Asia)	3, 237	983	2, 034	553	9	0	0
British South Africa	2, 505	660	884	370	407	0	98
Peru	82	425	716	622	149	50	147
China	74	184	145	48	26	27	0
Other countries	62	97	175	52	58	14	30
Total	6, 752	2, 890	4, 338	2, 036	999	141	593
Sausage casings:							
Germany	1, 904	1, 353	2, 599	1, 813	763	850	582
Argentina	4, 804	4, 975	5, 719	5, 459	3, 897	3, 373	3, 648
Canada	3, 351	3, 928	2, 989	2, 218	1, 808	2, 199	1, 938
Australia	2, 198	2, 213	2, 597	3, 024	1, 638	1, 457	1, 286
China	2, 074	1, 640	1, 445	1, 256	918	655	463
New Zealand	901	1, 223	1, 086	1, 470	798	1, 087	1, 250
Uruguay	876	917	1, 317	1, 527	736	497	664
Chile	454	260	859	648	404	522	386
Russia, Soviet (Europe)	633	665	951	1, 300	496	500	650
Turkey (Asia and Europe)	213	235	268	224	353	251	295
Other countries	1, 436	2, 136	2, 210	2, 617	1, 544	1, 835	1, 725
Total	18, 844	19, 545	22, 040	21, 556	13, 355	13, 226	12, 887

[1] Preliminary. [2] Less than 500.

TABLE 448.—*Imports of principal agricultural products into the United States, by countries, 1926–27 to 1932–33*—Continued

Article and country from which imported	Year ended June 30						
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33 [1]
VEGETABLE PRODUCTS							
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Cocoa or cacao beans:							
British West Africa	164, 338	133, 963	146, 739	145, 400	151, 524	131, 720	167, 660
Brazil	81, 148	100, 262	87, 338	95, 516	75, 726	142, 284	173, 894
Dominican Republic	51, 084	39, 591	50, 353	41, 120	37, 898	54, 412	38, 244
British West Indies and Bermudas	31, 247	38, 217	41, 933	39, 276	41, 805	21, 240	27, 084
Venezuela	13, 207	14, 482	18, 008	19, 302	17, 338	13, 936	23, 451
Germany	15, 797	29, 074	17, 424	8, 565	11, 506	8, 347	725
United Kingdom	15, 644	9, 234	10, 612	12, 790	16, 429	12, 103	1, 645
Netherlands	13, 133	11, 502	6, 074	5, 528	9, 990	4, 289	125
Ecuador	13, 710	19, 210	16, 939	14, 754	13, 170	11, 920	9, 586
French Africa	220	0	44	8, 741	12, 308	7, 282	10, 518
Panama	4, 899	3, 861	9, 148	7, 693	10, 080	13, 451	10, 769
Other countries	20, 757	12, 147	14, 631	23, 253	17, 668	13, 869	12, 720
Total	425, 184	411, 543	419, 243	421, 938	415, 442	434, 853	476, 421
Coffee:							
Brazil	1, 000, 721	1, 059, 742	933, 056	1, 011, 430	1, 196, 881	1, 158, 566	809, 530
Colombia	313, 590	261, 678	263, 236	351, 333	330, 379	334, 105	376, 555
Central America	40, 070	64, 443	54, 774	56, 763	53, 276	31, 923	75, 246
Venezuela	43, 436	53, 072	64, 621	55, 710	60, 378	45, 849	40, 586
Other countries	47, 030	96, 457	119, 383	86, 822	87, 655	58, 398	156, 244
Total	1, 444, 847	1, 535, 392	1, 435, 070	1, 562, 058	1, 728, 569	1, 628, 841	1, 458, 161
Cotton, raw: [6]	*Bales*	*Bales*	*Bales*	*Bales*	*Bales*	*Bales*	*Bales*
Egypt	213, 975	197, 868	282, 442	181, 740	21, 688	66, 313	52, 640
China	30, 408	67, 203	38, 816	46, 206	31, 135	9, 092	50, 595
British India	19, 330	26, 081	53, 842	59, 200	34, 577	21, 865	3, 833
Mexico	97, 384	24, 076	54, 402	40, 702	14, 238	21, 921	223
Peru	18, 097	19, 133	18, 066	19, 144	1, 623	3, 757	4, 889
Other countries	20, 311	32, 689	28, 277	66, 517	3, 837	15, 746	20, 406
Total	399, 505	367, 050	475, 845	413, 509	107, 098	138, 694	132, 586
Flax, unmanufactured: [7]	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Latvia	898	1, 520	2, 176	2, 231	1, 926	1, 836	18
United Kingdom	1, 231	1, 800	1, 758	1, 768	383	487	415
Russia, Soviet (Europe)	642	149	294	1, 127	155	62	2, 047
Belgium	446	739	757	810	536	157	217
Netherlands	287	253	208	231	154	67	12
Other Europe	790	726	283	695	275	1, 077	184
Total Europe	4, 294	5, 187	5, 476	6, 862	3, 429	3, 686	2, 893
Canada	45	126	72	97	137	233	194
Other countries	366	124	102	54	32	0	0
Total	4, 705	5, 437	5, 650	7, 013	3, 598	3, 919	3, 087
Manila fiber: [7]							
Philippine Islands	60, 381	46, 967	59, 832	70, 813	42, 569	26, 532	24, 870
Other countries	249	1, 051	472	2, 035	635	202	301
Total	60, 630	48, 018	60, 304	72, 848	43, 204	26, 734	25, 171
Sisal and henequen: [7]							
Mexico	82, 008	92, 534	95, 080	57, 098	38, 463	71, 428	105, 353
Netherland East Indies	18, 870	16, 433	20, 037	30, 450	24, 754	14, 915	38, 137
Cuba	2, 770	1, 849	2, 186	3, 402	4, 181	2, 065	3, 933
Netherlands	238	1, 973	2, 216	3, 161	2, 595	5, 219	0
United Kingdom	297	234	1, 686	1, 583	7, 264	7, 922	55
Other countries	11, 968	11, 181	14, 146	16, 814	6, 675	7, 243	18, 488
Total	116, 151	124, 204	135, 351	112, 508	83, 932	108, 792	165, 966
Fruits:							
Dried:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Cherries, dried or prepared:							
Italy	15, 112	325	107	76	512	(2)	3
France	616	573	227	743	158	146	96
Other countries	246	66	50	47	[8] 610	2	(2)
Total	15, 974	964	384	866	1, 280	148	99

[1] Preliminary.
[2] Less than 500.
[6] Bales of 478 pounds net.
[7] Tons of 2,240 pounds.
[8] Yugoslavia.

TABLE 448.—*Imports of principal agricultural products into the United States, by countries, 1926–27 to 1932–33*—Continued

Article and country from which imported	Year ended June 30						
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33 [1]
VEGETABLE PRODUCTS—continued							
Fruits—Continued.							
Dried—Continued.	*1,000 pounds*	*1,000 pounds*	*1,000 pounsd*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Currants:							
Greece	12,714	10,800	9,178	9,950	8,594	6,652	6,543
Other Europe	199	56	108	13	0	0	0
Total Europe	12,913	10,856	9,286	9,963	8,594	6,652	6,543
Other countries	98	178	96	92	16	11	62
Total	13,011	11,034	9,382	10,055	8,610	6,663	6,605
Dates:							
Iraq	10,161	34,700	45,373	48,804	34,418	33,492	30,504
United Kingdom	3,413	6,987	3,085	1,350	5,544	6,652	16,368
Arabia	32,828	694	476	703	990	153	284
Other countries	3,032	1,747	5,153	2,393	1,476	3,604	666
Total	49,434	44,128	54,087	53,250	42,428	43,901	47,822
Figs:							
Turkey (Asia and Europe)	22,270	16,566	22,418	12,784	9,998	6,249	4,299
Portugal	2,786	5,933	4,404	934	843	397	30
Greece	6,842	2,465	4,910	6,084	2,933	1,181	969
Italy	3,305	1,943	1,358	641	1,018	780	709
Other countries	4,301	4,552	2,473	1,474	33	88	31
Total	39,504	31,459	35,563	21,917	14,825	8,695	6,038
Fresh:							
Avocados: [9]							
Cuba	5,261	2,169	4,612	6,598	9,544	10,190	8,681
Other countries	115	161	139	146	2	4	0
Total	5,376	2,330	4,751	6,744	9,546	10,194	8,681
	1,000 bunches	*1,000 bunches*	*1,000 bunches*	*1,000 bunches*	*1,000 bunches*	*1,000 bunches*	*1,000 bunches*
Bananas:							
Central America	32,208	39,676	42,386	42,764	36,818	33,698	31,636
Jamaica	13,861	13,398	11,722	11,513	11,010	7,905	2,368
Mexico	5,928	6,511	4,481	6,200	5,520	4,957	5,644
Cuba	2,905	2,730	3,467	4,149	3,562	3,163	2,668
Colombia	2,073	1,695	1,439	1,171	909	1,970	2,714
Other countries	127	19	35	112	22	92	84
Total	57,102	64,029	63,530	65,909	57,841	51,785	45,114
Cherries, natural, sulphured, or in brine:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Italy	5,169	12,009	12,365	20,327	7,528	4,446	871
France	2	2,465	200	1,346	85	351	2
Yugoslavia [10]	0	354	266	410	253	1,106	788
Canada	543	56	140	279	60	31	19
Other countries	19	252	202	(2)	0	9	22
Total	5,733	15,136	13,173	22,362	7,926	5,943	1,702
	1,000 boxes	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*
Lemons: [11]							
Italy	654	1,300	382	1,217	342	159	146
Other Europe	5	4	8	10	8	17	(2)
Total Europe	659	1,304	390	1,227	350	176	146
Other countries	0	4	1	2	0	(2)	(2)
Total	659	1,308	391	1,229	350	176	146
	1,000 gallons	*1,000 gallons*	*1,000 gallons*	*1,000 gallons*	*1,000 gallons*	*1,000 gallons*	*1,000 gallons*
Olives, in brine:							
Spain	4,664	5,739	6,209	7,746	6,649	6,003	3,984
Greece	96	144	204	308	625	666	586
Other Europe	425	532	496	357	144	367	92
Total Europe	5,185	6,415	6,909	8,411	7,418	7,036	4,662
Other countries	27	43	46	41	11	21	13
Total	5,212	6,458	6,955	8,452	7,429	7,057	4,675

1 Preliminary. 2 Less than 500.

9 Compiled from Report of the Federal Horticultural Board, 1927 and 1928, Report of the Plant Quarantine and Control Administration, 1929 and 1930, official records of the Bureau of Foreign and Domestic Commerce, 1931–33.

10 Includes Albania prior to Jan. 1, 1932.

11 Boxes of 74 pounds net.

TABLE 448.—*Imports of principal agricultural products into the United States, by countries, 1926–27 to 1932–33*—Continued

Article and country from which imported	Year ended June 30						
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33 [1]
VEGETABLE PRODUCTS—continued							
Grains, flours, etc.:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Rice, cleaned, excluding patna:							
Hong Kong	19, 741	20, 786	17, 934	15, 094	15, 878	11, 011	8, 777
Mexico	8, 002	1, 264	1, 022	1, 259	2, 700	1, 608	5, 009
Italy	3, 695	3, 971	1, 032	1, 310	1, 391	1, 072	970
Netherlands	5, 837	2, 139	271	1, 622	2, 419	1, 233	292
British India	465	1, 061	2, 380	243	1, 059	724	1, 022
Germany	3, 768	1, 077	396	489	2, 367	468	84
Siam	2, 912	448	1	0	0	0	0
Other countries	9, 668	2, 928	2, 130	929	812	1, 041	1, 429
Total	54, 088	33, 674	25, 166	20, 946	26, 626	17, 157	17, 583
Rice, patna:							
Netherlands	[12] 1, 215	1, 826	2, 329	2, 010	2, 051	1, 035	510
Other countries	[12] 6	0	0	166	65	52	336
Total	[12] 1, 221	1, 826	2, 329	2, 176	2, 116	1, 087	846
Rice, uncleaned:							
Mexico	7, 802	3, 036	5, 904	4, 181	0	0	71
Japan	3, 213	2, 316	1, 441	1, 492	5, 011	1, 468	1, 505
British India	224	428	325	694	419	55	20
British Guiana	0	40	66	423	656	106	0
Other countries	489	176	324	215	76	55	4
Total	11, 728	5, 996	8, 060	7, 005	6, 162	1, 684	1, 600
Rice, flour, and meal:							
Mexico	2, 307	1, 981	508	340	0	0	0
Japan	469	442	504	472	426	352	408
Hong Kong	96	100	62	86	60	123	86
China	36	38	68	51	24	36	26
France	3	3	5	7	30	26	14
Other countries	61	42	92	129	63	19	1, 105
Total	2, 972	2, 606	1, 239	1, 085	603	556	1, 639
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Wheat:							
Canada	13, 234	15, 706	21, 429	12, 948	19, 053	12, 885	9, 379
Other countries	1	0	1	0	1	(2)	(2)
Total	13, 235	15, 706	21, 430	12, 948	19, 054	12, 885	9, 379
Wheat flour:	*Barrels*	*Barrels*	*Barrels*	*Barrels*	*Barrels*	*Barrels*	*Barrels*
Canada	5, 344	3, 474	2, 273	889	630	145	560
United Kingdom	474	49	45	651	363	43	44
Other countries	238	2, 206	285	163	169	84	77
Total	6, 056	5, 729	2, 603	1, 703	1, 162	272	681
Nuts:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Almonds, shelled:							
Spain	8, 389	9, 637	10, 399	8, 902	6, 432	4, 830	3, 386
Italy	6, 076	7, 703	6, 578	8, 912	6, 348	3, 287	1, 321
France	541	306	286	136	223	163	53
Other Europe	165	197	273	118	61	5	1
Total Europe	15, 171	17, 843	17, 536	18, 068	13, 064	8, 285	4, 761
Other countries	528	414	570	236	177	51	102
Total	15, 699	18, 257	18, 106	18, 304	13, 241	8, 336	4, 863
Almonds, not shelled:							
Spain	158	229	1, 068	4, 530	3	1	141
Italy	180	98	73	375	18	7	1
France	154	131	474	518	54	0	0
Other Europe	7	5	267	61	0	0	(2)
Total Europe	499	463	1, 882	5, 484	75	8	142
Other countries	139	1	9	19	3	1	2
Total	638	464	1, 891	5, 503	78	9	144

[1] Preliminary. [2] Less than 500. [12] January–June.

TABLE 448.—*Imports of principal agricultural products into the United States, by countries, 1926–27 to 1932–33*—Continued

Article and country from which imported	Year ended June 30						
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33 [1]
VEGETABLE PRODUCTS—continued							
Nuts—Continued.	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Cashew nuts: [13]							
British India	-------	-------	-------	[12] 3, 277	7, 178	12, 948	7, 057
France	-------	-------	-------	[12] 184	21	38	0
Haiti, Republic of	-------	-------	-------	[12] 4	110	43	3
Other countries	-------	-------	-------	[12] 69	128	137	91
Total	-------	-------	-------	[12] 3, 534	7, 437	13, 166	7, 151
Filberts, shelled:							
France	1, 014	1, 206	1, 027	178	334	91	52
Italy	732	348	746	752	345	335	312
Spain	421	329	1, 764	2, 888	37	428	240
Germany	277	22	175	49	334	0	0
Other Europe	281	77	63	25	118	74	16
Total Europe	2, 725	1, 982	3, 775	3, 892	1, 168	928	620
Turkey (Asia and Europe)	2, 133	4, 618	1, 800	609	3, 417	1, 422	2, 686
Other countries	92	0	31	2	11	0	0
Total	4, 950	6, 600	5, 606	4, 503	4, 596	2, 350	3, 306
Filberts, not shelled:							
Italy	9, 296	6, 687	11, 053	4, 548	3, 987	6, 293	5, 717
Spain	49	1, 936	818	954	423	73	83
Other Europe	291	1, 334	243	254	229	11	0
Total Europe	9, 636	9, 957	12, 114	5, 756	4, 639	6, 377	5, 800
Turkey (Asia and Europe)	54	1, 265	20	0	820	0	0
Other countries	132	22	0	0	200	0	0
Total	9, 822	11, 244	12, 134	5, 756	5, 659	6, 377	5, 800
Peanuts, shelled:							
China	44, 729	49, 986	23, 987	7, 140	4, 989	341	1
Kwantung	962	1, 533	1, 682	544	394	25	0
Japan	267	110	330	3	2	1	100
Hong Kong	15	13	58	9	22	20	8
Philippine Islands	0	0	0	351	1, 075	382	0
Other countries	879	3, 142	549	305	23	1	0
Total	46, 852	54, 784	26, 606	8, 352	6, 505	770	109
Peanuts, not shelled:							
China	3, 812	12, 339	4, 680	2, 445	3, 483	724	24
Japan	245	509	360	212	343	156	96
Hong Kong	50	58	108	67	126	188	75
Kwantung	0	100	200	110	255	80	0
Other countries	303	492	361	76	76	1	0
Total	4, 410	13, 498	5, 709	2, 910	4, 283	1, 149	195
Walnuts, shelled:							
France	8, 995	12, 551	9, 308	11, 357	4, 679	5, 094	2, 729
Other Europe	3, 007	989	2, 033	722	2, 090	1, 245	847
Total Europe	12, 002	13, 540	11, 341	12, 079	6, 769	6, 339	3, 576
China	8, 144	1, 952	5, 052	4, 364	8, 216	4, 129	1, 768
Other countries	833	523	1, 563	835	1, 341	263	434
Total	20, 979	16, 015	17, 956	17, 278	16, 326	10, 731	5, 778
Walnuts, not shelled:							
Italy	12, 082	4, 558	4, 501	4, 620	2, 356	4, 099	1, 802
France	3, 566	2, 244	2, 720	831	477	1, 201	80
Other Europe	3, 004	144	3, 336	117	99	68	2
Total Europe	18, 652	6, 946	10, 557	5, 568	2, 932	5, 368	1, 884
China	5, 870	2, 531	4, 575	1, 419	504	81	42
Other countries	1, 184	837	449	37	116	53	409
Total	25, 706	10, 314	15, 581	7, 024	3, 552	5, 502	2, 335

[1] Preliminary. [12] January–June. [13] Included with "other edible nuts" prior to Jan. 1, 1930.

TABLE 448.—*Imports of principal agricultural products into the United States, by countries, 1926–27 to 1932–33*—Continued

Article and country from which imported	Year ended June 30						
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33 [1]
VEGETABLE PRODUCTS—continued							
Oils, vegetable:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Coconut, product of Philippine Islands	286, 776	273, 309	377, 288	370, 600	315, 942	297, 083	260, 700
Olive, edible:							
Italy	58, 706	45, 145	62, 202	71, 265	45, 661	47, 116	45, 841
Spain	21, 682	17, 797	16, 910	20, 909	23, 675	27, 823	21, 712
France	4, 705	5, 335	6, 182	2, 959	2, 335	2, 395	1, 920
Other Europe	1, 300	954	1, 527	710	542	204	1, 556
Total Europe	86, 393	69, 231	86, 821	95, 843	72, 213	77, 538	71, 029
Other countries	1, 529	899	1, 297	2, 603	1, 581	1, 151	1, 336
Total	87, 922	70, 130	88, 118	98, 446	73, 794	78, 689	72, 365
Olive, inedible:							
Italy	32, 124	29, 244	35, 889	33, 992	27, 364	28, 831	19, 096
Spain	10, 882	12, 333	9, 575	16, 518	13, 987	20, 352	10, 847
Greece	2, 206	2, 783	6, 856	346	2, 579	3, 030	11, 329
Portugal	783	1, 675	2, 122	425	1, 038	1, 445	1, 625
Other Europe	576	525	325	1, 817	25	741	50
Total Europe	46, 571	46, 560	54, 767	53, 098	44, 993	54, 399	42, 947
Algeria and Tunisia	206	1, 296	4, 103	6, 877	6, 753	4, 110	9, 527
Other countries	30	107	807	198	666	359	319
Total	46, 807	47, 963	59, 677	60, 173	52, 412	58, 868	52, 793
Soybean:							
Kwantung	15, 759	13, 546	11, 089	12, 867	5, 769	2, 358	0
China	1, 803	891	1, 520	0	0	723	0
Japan	4, 033	41	1, 729	121	1	(2)	0
Other countries	1, 958	84	2, 834	344	145	4	1
Total	23, 553	14, 562	17, 172	13, 332	5, 915	3, 085	1
Oilseeds:							
Copra, not prepared:							
Philippine Islands	330, 946	336, 920	386, 567	299, 193	311, 781	229, 346	244, 246
Netherland East Indies	10, 579	5, 867	27, 144	29, 206	76, 495	88, 309	168, 683
British Malaya	59, 746	40, 381	84, 700	42, 114	57, 619	64, 660	34, 590
British Oceania	19, 131	19, 941	37, 685	43, 778	48, 774	25, 861	26, 082
French Oceania	29, 188	25, 273	21, 306	22, 662	21, 482	12, 791	16, 166
Australia	37	17, 445	55, 988	35, 455	30, 077	13, 096	0
New Zealand	0	76	4, 281	17, 325	13, 838	5, 475	0
Other countries	4, 919	10, 255	12, 266	3, 723	5, 331	6, 203	5, 054
Total	454, 546	456, 158	629, 937	493, 456	565, 397	445, 741	494, 821
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Flaxseed:							
Argentina	20, 581	16, 057	20, 927	19, 236	6, 102	13, 342	5, 495
Canada	3, 429	1, 933	2, 528	355	1, 490	506	718
Other countries	214	122	39	61	221	2	0
Total	24, 224	18, 112	23, 494	19, 652	7, 813	13, 850	6, 213
Seeds, except oilseeds:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Clover seed:							
Clover, red:							
France	10, 173	493	3, 664	845	2, 249	0	0
Poland and Danzig	0	2, 015	1, 278	1, 141	0	0	0
Germany	251	697	679	283	0	0	0
Russia, Soviet (Europe)	0	1, 328	202	88	0	0	0
Other Europe	278	855	1, 578	0	0	0	0
Total Europe	10, 702	5, 388	7, 401	2, 357	2, 249	0	0
Other countries	310	46	151	0	0	30	(2)
Total	11, 012	5, 434	7, 552	2, 357	2, 249	30	(2)
All other, including alsike, crimson, etc.:							
France	1, 561	791	2, 750	589	1, 450	55	8
Germany	455	799	1, 651	2, 149	686	982	689
Poland and Danzig	390	964	957	963	330	286	1, 076
Hungary	694	485	372	1, 546	1, 510	1, 293	683
Other Europe	481	221	303	286	129	110	154
Total Europe	3, 581	3, 260	6, 033	5, 533	4, 105	2, 726	2, 610
Canada	10, 745	13, 121	8, 899	7, 515	95	(2)	11
Other countries	7	16	12	0	8	13	5
Total	14, 333	16, 397	14, 944	13, 048	4, 208	2, 739	2, 626

[1] Preliminary. [2] Less than 500.

TABLE 448.—*Imports of principal agricultural products into the United States, by countries, 1926–27 to 1932–33*—Continued

Article and country from which imported	Year ended June 30						
	1926–27	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33 [1]
VEGETABLE PRODUCTS—continued							
Spices:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Pepper, unground:							
Netherland East Indies	6,636	6,446	9,205	17,250	19,351	23,431	25,223
British India	11,048	7,907	6,218	7,505	6,995	4,754	2,517
United Kingdom	3,577	5,292	3,435	3,238	1,499	1,554	365
British Malaya	2,287	2,831	1,469	870	1,409	2,770	1,197
French Indo-China	280	44	2	261	1,964	538	0
Other countries	1,389	1,458	5,334	1,864	81	141	168
Total	25,217	23,978	25,663	30,988	31,299	33,188	29,470
Sugar, raw, cane: [14]	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Cuba	3,953,360	3,399,294	4,108,503	2,769,371	2,404,979	2,350,218	1,691,625
Philippine Islands	427,747	612,859	604,695	808,878	859,467	874,374	1,225,019
Virgin Islands	4,072	8,617	7,983	4,837	3,578	4,075	5,037
Other countries	35,245	23,791	31,121	58,002	19,197	33,575	29,014
Total	4,420,424	4,044,561	4,752,302	3,641,088	3,287,221	3,262,242	2,950,695
Tea:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Japan	28,430	25,399	27,329	22,048	21,416	22,927	24,209
United Kingdom	22,136	20,380	23,608	21,578	23,310	23,340	17,809
Ceylon	16,578	16,326	16,893	19,047	16,895	16,855	16,100
China	11,655	10,131	8,878	7,405	6,704	7,329	6,490
British India	8,059	9,198	7,688	9,217	10,612	9,886	12,033
Netherland East Indies	7,660	5,398	5,358	4,891	5,184	6,637	14,848
Other countries	2,884	3,267	2,881	2,182	3,027	3,485	3,319
Total	97,402	90,099	92,635	86,368	87,148	90,459	94,808
Tobacco, leaf, unmanufactured:							
Product of the Philippine Islands	1,117	2,541	4,678	4,007	4,278	4,207	1,842
For cigar wrappers:							
Netherlands	6,358	6,218	6,095	8,415	2,988	3,365	2,222
Other countries	115	126	117	126	51	52	106
Total	6,473	6,344	6,212	8,541	3,039	3,417	2,328
All other leaf:							
Greece	28,383	15,694	16,741	13,400	18,913	19,467	13,522
Cuba	24,233	21,530	22,116	21,773	18,299	13,048	9,230
Turkey (Asia and Europe)	15,355	17,289	14,269	6,162	12,974	13,293	17,769
Italy	13,708	13,743	11,286	6,563	12,124	13,931	8,178
Germany	973	1,242	305	391	71	175	88
Other countries	847	729	1,284	87	284	728	1,687
Total	83,499	70,227	66,001	48,376	62,665	60,642	50,474
Onions: [15]	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Spain	1,084	701	1,007	768	177	152	16
Egypt	912	392	105	38	0	125	11
Chile	76	213	134	49	10	234	5
Italy	65	35	145	42	24	26	37
Netherlands	48	11	580	5	0	3	0
Other countries	113	47	79	16	3	125	4
Total	2,298	1,399	2,050	918	214	665	73
India rubber, crude:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
British Malaya	602,756	524,834	811,843	788,594	733,419	759,029	561,782
Netherland East Indies	156,772	170,161	215,863	195,297	164,690	157,966	138,508
Ceylon	89,874	73,542	112,257	118,425	86,985	79,522	66,490
United Kingdom	55,155	110,575	50,938	7,249	27,970	65,715	1,102
Other countries	57,910	46,928	36,028	27,841	19,134	21,408	8,547
Total	962,467	926,040	1,226,929	1,137,406	1,032,198	1,083,640	776,429

[1] Preliminary.
[14] Tons of 2,000 pounds.
[15] Bushels of 57 pounds.

Bureau of Agricultural Economics, Foreign Agricultural Service. Compiled from Monthly Summary of Foreign Commerce of the United States, January and June issues, 1927–32, and official records of the Bureau of Foreign and Domestic Commerce.

Table 449.—*Oil cake and oil-cake meal: International trade, average 1925–29, annual 1929–32*

Country	Calendar year									
	Average, 1925–29		1929		1930		1931		1932 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
United States	1,394,589	196,587	1,278,525	334,172	511,392	134,148	910,992	40,356	640,889	38,790
Russia	672,830	0	651,036	0	614,127	0	724,454	0	918,260	0
British India	584,664	246	705,990	228	530,085	177	612,566	78	656,528	40
Egypt	356,706	3	391,092	0	503,541	0	416,278	0	411,623	0
France	336,094	75,294	360,341	102,373	553,794	90,974	461,485	170,810	372,931	234,852
China	270,571	0	291,910	0	300,908	0	274,466	0	120,513	0
Italy	242,957	603	303,662	436	134,412	3,497	259,072	931	173,797	6,350
Rumania	[2] 147,111	[2] 7	158,061	0	207,129	0	190,515	163	185,731	-----
Argentina	139,227	0	146,339	0	144,238	0	199,530	0	214,871	0
Dutch East Indies	135,473	0	182,958	0	141,686	0	168,550	0	[3] 141,731	0
Peru	70,465	0	66,540	0	78,715	0	79,112	0	69,878	0
Brazil	54,650	0	58,633	0	57,387	0	76,364	0	88,510	0
Canada	45,464	15,863	51,032	21,931	35,907	16,559	29,817	9,202	23,307	6,743
Bulgaria	37,520	10	55,701	30	77,575	0	77,414	30	67,265	-----
Spain	28,199	3,754	10,853	7,545	5,135	12,572	5,096	18,120	2,147	16,229
British Malaya	14,301	11,530	17,183	16,858	12,311	11,932	13,512	11,487	18,240	12,031
Chile	7,725	1	5,640	0	5,077	0	5,490	0	7,841	0
Australia [4]	6,921	2,404	10,210	938	7,567	1,068	12,088	262	23,219	8
Latvia	4,355	0	3,058	0	11,665	714	2,392	0	1,735	223
Estonia	1,169	3,694	1,850	687	5,487	143	3,162	647	942	350
Total	4,550,991	309,996	4,750,614	485,198	3,938,138	271,784	4,522,355	252,086	4,139,958	315,616
PRINCIPAL IMPORTING COUNTRIES										
Denmark	26,788	1,558,619	31,326	1,612,452	35,644	1,451,361	40,536	1,547,206	69,465	1,127,958
Germany	768,849	1,064,314	620,202	1,163,887	594,523	980,524	440,686	1,129,400	125,970	1,349,844
United Kingdom	167,379	1,001,966	160,247	993,657	134,228	975,034	162,570	980,569	156,556	934,291
Netherlands	120,322	680,253	133,907	835,947	141,231	487,119	171,637	536,139	144,979	369,123
Japan	43,218	346,986	78,254	316,815	23,276	321,335	26,577	322,589	29,636	250,846
Belgium	83,170	324,675	99,818	337,629	81,220	393,842	123,706	466,498	134,867	431,984
Sweden	12,655	305,454	18,261	290,655	28,194	307,963	23,704	393,639	26,462	250,590
Finland	0	183,687	0	163,685	0	134,067	0	95,788	0	66,399
Irish Free State	0	111,617	0	108,652	0	110,090	0	127,082	0	5,385
Czechoslovakia	54,113	76,079	59,654	97,313	97,404	99,772	68,653	136,489	63,096	82,121
Switzerland	13,977	75,127	12,844	69,505	16,937	57,948	22,733	60,246	12,649	76,780
Norway	984	63,263	4,730	33,812	1,245	49,556	1,962	99,389	9,613	35,633

Poland	28, 545	56, 356	35, 885	69, 690	33, 685	45, 529	26, 069	35, 037	42, 729	25, 591
Ceylon	25, 252	42, 690	37, 343	40, 195	31, 234	35, 307	41, 511	29, 670	48, 575	28, 925
Austria	1, 411	31, 822	1, 628	41, 111	1, 002	38, 518	926	46, 482	45	52, 193
Hungary	15, 310	16, 411	24, 675	27, 115	21, 081	27, 534	18, 617	36, 763	8, 371	20, 449
Total	1, 361, 973	5, 939, 319	1, 318, 774	6, 202, 120	1, 240, 904	5, 515, 499	1, 169, 887	6, 042, 986	873, 013	5, 108, 112

[1] Preliminary. [2] 4-year average. [3] Java and Madura only. [4] Year ended June 30.

Bureau of Agricultural Economics; official sources.

The class called here "oil cake and oil-cake meal" includes the edible cake and meal remaining after making oil from such products as cottonseed, flaxseed, peanuts, corn, etc. Soybean cake is not included in this table.

TABLE 450.—*Vegetable oils: Exports from the United States, 1909–10 to 1932–33*

Year beginning July	Corn	Cotton-seed [1]	Linseed	Cocoa butter or butterine	Coconut	Peanut	Soybean
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1909–10	11, 299	223, 955	1, 713				
1910–11	25, 371	225, 521	1, 314				
1911–12	23, 866	399, 471	1, 852				
1912–13	19, 839	315, 233	13, 004				
1913–14	18, 282	192, 963	1, 794				
1914–15	17, 790	318, 367	9, 091				
1915–16	8, 968	266, 512	5, 356				
1916–17	8, 780	158, 912	9, 012				
1917–18	1, 831	100, 780	8, 909				
1918–19	1, 095	178, 709	8, 222				
1919–20	12, 483	159, 400	8, 523	[2] 11, 048	[2] 141, 088	[2] 4, 922	[2] 67, 782
1920–21	6, 919	283, 268	4, 210	3, 171	6, 639	1, 595	5, 118
1921–22	5, 280	91, 615	2, 744	1, 856	10, 185	1, 802	537
1922–23	5, 224	64, 292	3, 105	957	12, 993	188	2, 495
1923–24	4, 196	39, 418	2, 628	888	19, 423	168	2, 892
1924–25	3, 586	53, 261	2, 405	1, 577	17, 890	(3)	579
1925–26	2, 927	59, 015	2, 335	1, 766	15, 444	(3)	623
1926–27	405	57, 580	2, 738	290	19, 826	(3)	3, 104
1927–28	329	61, 470	2, 221	1, 897	22, 358	(3)	7, 514
1928–29	323	29, 531	2, 020	1, 010	24, 556	(3)	8, 241
1929–30	363	31, 998	2, 129	347	30, 225	(3)	5, 509
1930–31	915	26, 353	1, 298	463	19, 963	(3)	4, 410
1931–32	744	40, 985	873	321	22, 083	(3)	3, 649
1932–33 [4]	901	44, 427	781	1, 424	25, 410	(3)	2, 209

[1] Crude and refined not separately reported 1909–10 to 1920–21; from 1921–22 to date the crude and refined figures have been added without converting.
[2] Not separately reported prior to July 1919.
[3] Included with "Other vegetable oils and fats."
[4] Preliminary.

Bureau of Agricultural Economics; compiled from Foreign Commerce and Navigation of the United States, 1910–18; Monthly Summary of Foreign Commerce of the United States, June issues, 1919–33.

TABLE 451.—*Vegetable oils: Imports into the United States, 1909–10 to 1932–33*

Year beginning July	Castor [1]	Tung	Cocoa butter or butterine	Coconut	Cottonseed [1]	Linseed	Olive	Palm	Palm kernel	Peanut	Perilla [2]	Rapeseed	Soybean
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*
1909–10	59	[3] 43,200	3, 370	48, 346	(4)	(4)	34, 089	92, 772	(4)	(5)		[6] 8, 122	(4)
1910–11	57	[3] 52,815	4, 279	51, 118	(4)	(4)	37, 382	57, 100	(4)	(5)		[6] 10,222	(4)
1911–12	56	35, 757	6, 075	46, 371	1, 513	5, 529	41, 044	47, 159	25, 393	6, 717		8, 872	28, 021
1912–13	42	44, 975	3, 603	50, 504	3, 384	1, 303	43, 803	50, 229	23, 569	8, 968		11, 623	12, 340
1913–14	1, 513	36, 993	2, 839	74, 386	17, 293	1, 442	52, 361	58, 040	34, 328	10, 029		10, 982	16, 360
1914–15	504	37, 052	150	63, 135	15, 162	4, 015	55, 230	31, 486	4, 906	6, 397	69	11, 240	19, 207
1915–16	2, 025	37, 262	400	66, 008	17, 181	376	60, 820	40, 497	6, 761	11, 063	66	19, 209	98, 120
1916–17	2, 590	51, 481	166	79, 223	13, 703	831	61, 381	36, 074	1, 857	22, 696	443	8, 137	162, 690
1917–18	9, 401	36, 118	(7)	259, 195	14, 291	381	19, 889	27, 405	19	62, 166	1, 016	22, 923	336, 825
1918–19	3, 778	46, 625	3	344, 728	20, 410	7, 424	32, 983	19, 281	1, 945	85, 445		15, 683	236, 805
1919–20	2, 171	79, 602	42	271, 540	24, 165	34, 128	52, 716	50, 165	54	165, 483		9, 221	195, 774
1920–21	792	33, 300	915	173, 889	1, 315	14, 974	35, 288	31, 076	2, 769	18, 163		8, 789	49, 331
1921–22	366	55, 572	7, 123	230, 236	(7)	168, 705	83, 337	39, 159		2, 878		10, 139	8, 283
1922–23	1, 398	89, 392	3, 010	212, 573	45	56, 764	117, 262	118, 816		7, 553		13, 274	38, 635
1923–24	271	80, 898	1, 169	181, 230	(7)	17, 840	113, 409	86, 784	1, 126	15, 061		15, 513	17, 631
1924–25	308	94, 695	733	250, 121	0	23, 587	118, 071	114, 387	37, 364	3, 510		14, 691	20, 434
1925–26	494	84, 861	14	200, 878	283	16, 733	137, 757	152, 254	85, 074	3, 372		15, 658	17, 401
1926–27	164	102, 428	256	286, 776	6, 396	1, 331	134, 729	110, 184	14, 760	7, 959		20, 480	23, 553
1927–28	934	83, 628	18	273, 309	1	346	118, 093	183, 977	56, 021	4, 859	2, 289	19, 530	14, 562
1928–29	130	115, 240	17	377, 288	(7)	6, 677	147, 794	228, 230	80, 514	3, 406	5, 791	19, 071	17, 172
1929–30	122	130, 942	270	370, 600	2	5, 416	158, 618	237, 860	41, 380	1, 964	9, 204	16, 137	13, 333
1930–31	125	99, 402	15	315, 942	1	256	126, 202	313, 940	17, 197	21, 163	9, 652	14, 479	5, 915
1931–32	764	81, 346	12	297, 083	0	28	137, 556	221, 155	9, 313	9, 320	12, 436	8, 641	3, 085
1932–33 [8]	1, 130	83, 858	13	260, 700	0	36	125, 159	253, 638	6, 000	1, 209	21, 373	7, 676	1

[1] Imports for consumption. (See introduction to Agricultural Statistics.)
[2] Not separately reported prior to 1914–15; 1914–15 to 1917–18 and 1927–28 are imports for consumption; 1918–19 to 1926–27 not available; 1928–29 to 1932–33 are general imports.
[3] Includes peanut oil.
[4] Included in all other fixed or expressed.
[5] Included in tung oil.
[6] Includes hempseed.
[7] Less than 500 pounds.
[8] Preliminary.

Bureau of Agricultural Economics; compiled from Foreign Commerce and Navigation of the United States, 1910–18: Monthly Summary of Foreign Commerce of the United States, June issues, 1919–33.

TABLE 452.—*Rubber: International trade, average 1925–29, annual 1930–32*

Country	Calendar year							
	Average, 1925–29		1930		1931		1932 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
British Malaya	931, 522	362, 113	1, 247, 342	304, 331	1, 162, 535	280, 972	1, 069, 623	207, 303
Dutch East Indies	593, 755	0	616, 332	0	653, 125	0	[2] 137, 611	0
Ceylon	133, 621	11, 137	170, 946	11, 155	138, 005	6, 991	111, 242	3, 854
Brazil	46, 638	0	26, 689	0	23, 096	0	11, 195	0
British India	23, 532	100	24, 153	260	18, 999	369	8, 733	306
Indo-China	20, 509	[3] 29	23, 045	106	[3] 26, 237	[3] 107	--------	--------
British North Borneo	14, 419	0	15, 937	0	13, 994	0	--------	0
Mexico	8, 440	566	2, 688	6	--------	--------	--------	--------
Bolivia	7, 474	[4] 1	[3] 5, 784	--------	[3] 3, 988	--------	--------	--------
Nigeria	3, 947	0	4, 877	0	4, 080	0	--------	0
Kamerun [3]	3, 818	1	3, 525	0	1, 935	0	--------	0
French Equatorial Africa	3, 242	[3] 211	[3] 1, 855	[3] 122	[3] 1, 834	0	--------	--------
Belgian Congo	2, 230	1	1, 126	0	550	0	203	22
French Guinea	2, 046	[3] 30	[3] 573	[3] 4	[3] 371	[3] 3	--------	--------
Switzerland	1, 939	1, 155	2, 566	1, 813	2, 104	1, 893	1, 882	1, 372
Ecuador	1, 756	0	318	0	4	0	--------	0
Gold Coast	889	0	540	0	221	0	--------	0
Peru	526	0	284	0	81	0	67	0
Angola	179	0	13	0	11	0	--------	0
Total	1, 800, 482	375, 344	2, 148, 593	317, 797	2, 051, 170	290, 335	1, 340, 556	212, 857
PRINCIPAL IMPORTING COUNTRIES								
United States	0	1, 002, 031	0	1, 089, 830	0	1, 124, 003	0	928, 857
United Kingdom	0	124, 052	0	268, 806	0	190, 818	0	112, 371
France	16, 049	106, 453	5, 685	159, 147	2, 421	105, 591	1, 584	103, 499
Germany	6, 051	87, 825	11, 469	113, 365	11, 551	99, 330	5, 336	106, 181
Canada	0	59, 580	0	64, 492	0	56, 583	0	46, 854
Japan	0	50, 307	0	73, 710	0	97, 548	0	125, 974
Italy	351	27, 855	149	41, 735	24	22, 639	28	34, 273
Russia	0	23, 145	0	36, 173	0	62, 192	0	67, 392
Belgium	2, 719	16, 271	3, 232	27, 470	5, 037	29, 774	4, 812	26, 134
Spain	19	13, 958	28	27, 699	50	15, 834	0	24, 826
Netherlands	6, 267	10, 561	4, 737	11, 288	4, 445	9, 440	4, 448	10, 833
Austria	1, 283	7, 269	2, 322	7, 739	2, 133	8, 902	1, 922	6, 299
Sweden	144	5, 420	102	10, 097	66	8, 736	151	9, 730
Czechoslovakia	276	5, 348	414	10, 550	776	18, 060	--------	--------
Hungary	213	2, 291	134	3, 216	185	3, 241	100	2, 935
Denmark	4	1, 341	2	2, 551	0	2, 136	0	2, 006
China	0	1, 016	0	1, 391	0	6, 774	0	10, 564
Total	33, 376	1, 544, 723	28, 274	1, 949, 259	26, 688	1, 861, 601	18, 381	1, 618, 728

[1] Preliminary.
[2] Java and Madura only.
[3] International Yearbook of Agricultural Statistics.
[4] 2-year average.

Bureau of Agricultural Economics; official sources except where otherwise noted.

Figures for rubber include "India rubber", so called, caoutchouc, caucho, jebe (Peru), hule (Mexico), borracha, massaranduba, mangabeira, manicoba, sorva, and seringa (Brazil), gamelastiek (Dutch East Indies), caura, ser nambi (Venezuela).

TABLE 453.—*Coffee: International trade, average 1925–29, annual 1929–32*

Country	Calendar year									
	Average, 1925–29		1929		1930		1931		1932 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
PRINCIPAL EXPORTING COUNTRIES										
Brazil	1, 865, 392	0	1, 889, 032	0	2, 022, 302	0	2, 361, 317	0	1, 578, 758	0
Colombia	324, 198	[2] 5	375, 114	13	419, 714	9	401, 269	3	---	---
Dutch East Indies	187, 523	3, 035	180, 368	2, 247	135, 614	2, 169	151, 634	5, 012	[3] 89, 235	[3] 22
Venezuela	118, 217	0	141, 907	0	103, 942	27	123, 550	0	108, 517	0
Guatemala	100, 915	0	97, 585	0	125, 934	0	80, 174	0	---	---
Salvador	96, 466	0	103, 137	0	129, 237	0	---	---	---	---
Haiti	72, 395	0	62, 956	0	73, 432	0	57, 960	0	---	0
Mexico	58, 789	422	66, 746	[2] 18	67, 681	202	60, 210	175	---	---
Costa Rica	38, 946	0	43, 393	0	51, 889	0	[2] 46, 297	0	---	0
Nicaragua	30, 645	0	29, 207	0	33, 736	99	34, 934	118	17, 918	105
British India	22, 540	4, 662	11, 567	6, 417	34, 894	4, 833	21, 019	1, 941	19, 186	139
Tanganyika	17, 217	45	19, 840	70	25, 865	85	20, 722	16	25, 451	6
Dominican Republic	9, 311	0	12, 142	0	10, 686	0	11, 306	0	14, 137	0
Jamaica	8, 729	0	6, 572	0	6, 875	0	9, 177	0	8, 877	0
Total	2, 951, 283	8, 169	3, 039, 566	8, 765	3, 241, 801	7, 424	3, 379, 569	7, 265	1, 862, 079	272
PRINCIPAL IMPORTING COUNTRIES										
United States	17, 669	1, 429, 825	6, 726	1, 482, 258	8, 727	1, 599, 317	7, 211	1, 741, 536	4, 797	1, 501, 126
France	219	360, 039	141	374, 869	160	394, 396	66	427, 712	112	412, 166
Germany	365	266, 650	539	327, 011	822	340, 310	2, 195	345, 082	1, 410	287, 337
Netherlands	36, 978	113, 722	24, 494	98, 597	21, 410	100, 918	14, 895	103, 515	19, 005	102, 882
Italy	4	99, 761	1	103, 325	6	99, 863	23	96, 667	41	89, 885
Sweden	25	90, 654	18	90, 349	87	99, 198	119	116, 616	95	85, 165
Belgium	890	88, 285	1, 541	86, 801	1, 308	105, 037	10, 232	134, 937	3, 901	113, 247
Denmark	564	53, 588	704	55, 758	743	60, 369	716	66, 383	515	54, 880
Argentina	0	51, 666	0	54, 663	0	56, 083	0	50, 555	0	38, 712
Spain	4	48, 120	11	52, 666	0	58, 325	0	48, 875	0	48, 528
United Kingdom	235	40, 698	265	46, 050	222	41, 928	204	39, 387	---	49, 023
Finland	0	36, 922	0	39, 402	0	48, 746	0	30, 983	0	29, 930
Norway [4]	0	35, 572	0	33, 996	0	37, 686	0	40, 315	0	34, 578
Czechoslovakia	3	29, 068	1	29, 885	24	30, 289	0	33, 446	0	32, 703
Union of South Africa	13	28, 306	19	28, 538	13	28, 951	13	31, 694	5	24, 635
Switzerland	201	27, 926	297	29, 516	424	30, 423	720	34, 150	769	44, 324
Canada	57	25, 811	84	28, 468	66	31, 181	44	32, 917	43	31, 162
Algeria	59	21, 971	3	26, 396	---	27, 851	---	30, 453	---	30, 312

Yugoslavia	5	21,180	1	21,466	0	20,154	0	19,671	0	15,299
Egypt	11	19,953	10	21,012	0	21,488	0	16,626	0	16,505
Cuba	1	19,382	2	18,528	23	12,200	1	1,873	----	----
Austria	6	18,368	6	20,693	6	19,842	5	21,644	1	16,543
British Malaya	9,010	17,046	5,555	14,219	5,023	14,099	5,210	12,169	5,285	11,729
Poland	6	15,819	16	17,854	7	17,379	6	17,986	2	15,379
Chile	21	14,385	69	11,109	57	11,653	34	10,626	----	7,345
Greece	0	11,544	0	12,186	0	12,870	[2] 1	14,459	----	9,407
Hungary	0	7,459	0	8,002	0	7,667	4	7,280	----	5,718
Ceylon	8	2,858	[2] 14	3,344	[2] 13	2,784	[2] 13	4,214	----	2,280
Bulgaria	0	1,874	0	1,687	0	1,565	0	1,503	0	1,340
Total	66,354	2,998,452	40,517	3,138,648	39,141	3,332,572	41,712	3,533,274	35,981	3,112,140

[1] Preliminary.
[2] International Yearbook of Agricultural Statistics.
[3] Java and Madura only.
[4] Includes a small amount of surrogate.

Bureau of Agricultural Economics; official sources except where otherwise noted.
The item, coffee, comprises unhulled and hulled, ground or otherwise prepared, but imitation or "surrogate" coffee and chicory are excluded.

TABLE 454.—*Tea: International trade, average 1925–29, annual 1929–32*

Country	Calendar year: Average, 1925–29		1929		1930		1931		1932 [1]	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
British India	364, 848	8, 260	388, 493	8, 462	365, 344	8, 660	343, 074	7, 597	367, 680	5, 586
Ceylon	228, 445	1	251, 490	[2] 1	243, 021	[2] 1	243, 970	1	252, 824	--------
Dutch East Indies	124, 947	8, 434	139, 930	9, 123	137, 573	8, 472	152, 095	[2] 6, 965	[3] 125,750	[3] 3, 956
China	116, 300	8, 214	125, 695	5, 010	91, 358	3, 028	92, 591	4, 421	86, 535	1, 493
Japan	24, 631	1, 009	23, 660	1, 244	20, 316	1, 152	25, 410	1, 233	29, 535	878
Formosa	20, 431	66	17, 668	92	17, 619	86	17, 389	95	--------	--------
Total	879, 602	25, 984	946, 936	23, 932	875, 231	21, 399	874, 529	20, 312	862, 324	11, 913
PRINCIPAL IMPORTING COUNTRIES										
United Kingdom	0	429, 507	0	464, 145	0	452, 763	0	445, 426	0	489, 033
United States	0	93, 052	0	89, 373	0	84, 926	0	86, 733	0	94, 727
Australia [2]	0	49, 242	0	50, 576	0	50, 028	0	42, 321	0	--------
Russia	0	43, 287	0	63, 029	0	53, 411	0	45, 653	0	35, 161
Canada	0	38, 268	0	38, 677	0	50, 886	0	33, 115	0	40, 418
Netherlands	29	26, 144	40	28, 716	93	29, 587	119	31, 214	128	36, 166
Irish Free State	0	23, 220	0	23, 580	0	23, 779	0	24, 686	0	23, 148
Persia	[4] 742	[4] 14, 925	[4] 506	[4] 16, 280	[4] 131	[4] 14, 475	[5] 10	[5] 9, 943	--------	--------
Morocco	0	12, 770	0	16, 788	0	12, 688	0	13, 835	0	--------
New Zealand	0	11, 159	0	12, 061	0	10, 178	0	12, 115	0	10, 415
Union of South Africa	218	11, 122	261	12, 095	83	12, 332	101	14, 168	151	10, 463
Germany	0	11, 037	0	12, 723	0	13, 320	0	11, 672	0	10, 577
Egypt	259	10, 814	248	13, 093	[6] 97	[6] 12, 199	[6] 20	[6] 15, 433	--------	[6] 16, 573
British Malaya	1, 323	10, 491	1, 217	11, 378	925	9, 694	667	7, 516	526	4, 972
Chile	4	5, 156	8	5, 700	8	4, 851	5	5, 060	--------	4, 246
Indo-China	2, 164	4, 827	2, 231	4, 312	1, 206	3, 408	[2] 1, 291	[2] 3, 162	--------	--------
Poland	15	4, 428	73	4, 839	7	4, 533	9	4, 477	4	3, 957
Argentina	0	3, 867	0	4, 213	0	3, 874	0	3, 950	0	3, 934
France	81	3, 456	69	3, 494	38	3, 278	40	3, 534	20	3, 286
Algeria	16	2, 140	13	2, 650	--------	2, 646	--------	2, 958	--------	3, 170
Czechoslovakia	3	1, 492	0	1, 606	0	1, 364	0	1, 807	0	1, 691
Denmark	0	1, 276	0	1, 267	0	1, 218	0	1, 359	0	1, 345
Austria	0	1, 236	2	1, 430	2	1, 150	2	1, 344	0	1, 038
Yugoslavia	0	869	0	913	2	647	0	620	0	456
Hungary	5	777	0	836	0	585	0	654	0	514
Total	4, 859	814, 562	4, 668	883, 774	2, 592	857, 820	2, 264	822, 755	829	795, 290

[1] Preliminary.
[2] International Yearbook of Agricultural Statistics.
[3] Java and Madura only.
[4] Year ended Mar. 20 of following year.
[5] Year ended June 21 of following year.
[6] Includes yerbe mate and imitation tea.

Bureau of Agricultural Economics; official sources except where otherwise noted.
These figures are for tea leaves only; tea dust and sweepings and yerbe maté are not included.

TABLE 455.—*Copra and coconut oil: International trade, average 1925–29, annual 1930–32*

COPRA

Country	Calendar year: Average, 1925–29 Exports	Average, 1925–29 Imports	1930 Exports	1930 Imports	1931 Exports	1931 Imports	1932 [1] Exports	1932 [1] Imports
PRINCIPAL EXPORTING COUNTRIES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Dutch East Indies	851,367	6	828,307	409	794,034	323	[2] 138,260	[2] 0
Philippine Islands	409,191	1,017	384,263	964	384,128	710	302,561	314
British Malaya	386,704	169,135	429,417	200,198	420,750	194,938	442,216	223,897
Ceylon	239,555	502	203,011	[3] 335	210,258	[3] 326	102,367	---
Fiji	62,601	0	53,496	0	37,894	0	33,770	0
Solomon Islands [3]	48,372	0	53,045	0	47,508	0	---	0
Mozambique	40,469	0	47,662	0	48,395	0	54,366	0
Zanzibar	36,278	11,050	28,668	10,926	26,363	115	26,440	217
Tonga	32,048	0	31,660	0	20,001	0	---	0
Samoa, West	30,179	0	27,518	0	24,779	0	---	0
Tanganyika	17,685	0	16,565	0	16,204	0	16,274	0
Trinidad and Tobago	16,331	11,193	21,891	1,893	19,485	1,555	15,419	1,802
Gilbert and Ellice Islands [4]	10,482	0	12,242	0	14,668	0	15,042	0
Total	2,181,262	182,903	2,137,745	214,725	2,064,467	197,967	1,146,715	226,230
PRINCIPAL IMPORTING COUNTRIES								
United States	0	469,115	0	595,339	0	457,947	0	453,447
Germany	777	442,523	25	332,356	27	319,944	188	288,007
France	145	364,155	64	437,648	158	430,806	100	389,501
Netherlands	791	308,530	945	213,464	360	191,077	517	138,664
United Kingdom	0	124,434	0	150,830	0	180,333	0	215,354
Denmark	0	122,840	0	154,088	0	156,663	0	165,731
Australia [3]	0	71,419	0	40,239	0	25,058	0	---
Italy	9	61,352	11	71,183	17	74,598	10	81,332
Norway	0	43,568	0	69,888	0	59,519	0	75,211
Austria	6	28,765	0	27,598	0	14,822	0	15,986
Sweden	0	24,518	0	8,758	0	11,931	0	11,460
Belgium	113	18,169	37	18,010	203	11,944	212	9,157
Latvia	0	3,496	0	5,188	0	3,239	0	4,951
British India	1,284	2,926	204	1,198	114	2,453	52	33,083
Total	3,125	2,085,810	1,286	2,125,787	879	1,940,334	1,079	1,881,884

COCONUT OIL

Country	Average, 1925–29 Exports	Average, 1925–29 Imports	1930 Exports	1930 Imports	1931 Exports	1931 Imports	1932 [1] Exports	1932 [1] Imports
PRINCIPAL EXPORTING COUNTRIES								
Philippine Islands	308,196	0	324,880	0	363,693	0	252,808	0
Netherlands	121,614	9,639	99,333	3,052	87,578	4,584	69,946	12,805
Ceylon	78,807	13	85,543	[3] 5	107,831	[3] 11	114,804	---
Dutch East Indies	42,689	10,562	31,903	11,496	9,625	11,309	[2] 34,570	[2] 0
Germany	33,181	11,254	25,874	18,942	19,796	14,899	7,794	21,801
France	29,644	10,076	22,928	10,132	16,221	11,385	15,100	18,425
British Malaya	20,223	58	21,217	67	22,756	560	27,747	1,019
Australia [3]	398	250	230	2	472	5	---	---
Total	634,752	41,852	611,908	43,696	627,972	42,753	522,769	54,050
PRINCIPAL IMPORTING COUNTRIES								
United States	21,691	294,849	25,107	317,919	18,088	325,175	23,558	249,117
United Kingdom	7,473	105,560	5,757	94,512	6,733	96,385	6,675	55,915
Belgium [5]	5,924	34,156	1,907	18,470	5,312	16,398	5,800	12,865
Sweden	3,365	32,563	1,590	46,492	901	41,295	325	45,836
Denmark	25,414	27,069	44,872	15,698	43,379	15,394	58,621	6,061
British India	1,037	12,054	433	8,217	371	21,178	236	65,889
Egypt	1	11,470	---	5,786	---	3,925	---	3,106
Italy [5]	102	8,724	101	8,496	514	3,982	75	2,026
Rumania	[6] 1	[6] 1,623	0	1,442	5	1,184	0	482
New Zealand	0	896	0	797	0	1,042	0	1,110
Canada	0	739	0	936	0	1,737	0	2,410
Total	65,008	529,703	79,767	518,765	75,303	527,695	95,290	444,817

[1] Preliminary.
[2] Java and Madura only.
[3] International Yearbook of Agricultural Statistics.
[4] Year ended June 30.
[5] Includes some other oils.
[6] 4-year average.

Bureau of Agricultural Economics; official sources except where otherwise noted.

FARM BUSINESS AND RELATED STATISTICS

TABLE 456.—*Crop summary: Acreage, yield per acre, and production, 1931–33*

Crop	Acreage harvested			Yield per acre			Unit	Production		
	1931	1932	1933	1931	1932	1933		1931	1932	1933
	1,000 acres	*1,000 acres*	*1,000 acres*	*(Except where footnotes appear, these units are same as in the unit column)*				*Thousands*	*Thousands*	*Thousands*
Corn, all	105,948	108,668	102,239	24.4	26.8	22.8	Bushels	2,588,509	2,906,873	2,330,237
All wheat	57,103	57,204	47,493	16.3	13.0	11.1	do	932,221	744,076	527,413
Winter	43,080	35,276	28,420	19.0	13.5	12.4	do	817,962	475,709	351,030
All spring	14,023	21,928	19,073	8.1	12.2	9.2	do	114,259	268,367	176,383
Durum	2,960	3,946	2,310	7.0	10.3	7.0	do	20,712	40,600	16,109
Other spring	11,063	17,982	16,763	8.5	12.7	9.6	do	93,547	227,767	160,274
Oats	40,084	41,425	36,541	28.1	30.1	19.8	do	1,126,913	1,246,658	722,485
Barley	11,424	13,346	10,052	17.4	22.6	15.5	do	198,543	302,042	156,104
Rye	3,104	3,344	2,352	10.4	12.2	9.0	do	32,290	40,639	21,184
Buckwheat	505	454	462	17.6	14.8	17.0	do	8,890	6,727	7,844
Flaxseed	2,416	1,975	1,283	4.9	5.9	5.3	do	11,798	11,671	6,785
Rice	964	868	769	46.5	46.6	46.3	do	44,873	40,408	35,619
Grain sorghums (all purposes)	7,166	7,864	8,143	14.7	13.5	10.8	do	105,369	106,306	87,884
Cotton, lint	38,705	35,939	30,144	[1] 211.5	[1] 173.3	[1] 209.4	Bales	17,095	13,002	13,177
Cottonseed							Tons	7,603	5,782	5,858
Hay, all	66,389	67,557	66,144	1.11	1.22	1.13	do	73,708	82,336	74,485
Hay, tame	54,136	53,282	53,829	1.21	1.32	1.22	do	65,341	70,199	65,852
Hay, wild	12,253	14,275	12,315	.68	.85	.70	do	8,367	12,137	8,633
Sorgo [2]	2,333	2,633	3,363	1.52	1.46	1.43	do	3,553	3,845	4,800
Timothy seed	509	372	292	4.02	3.78	3.10	Bushels	2,046	1,406	908
Clover seed (red and alsike)	825	1,101	1,006	1.35	1.53	1.39	do	1,118	1,686	1,400
Sweetclover seed	248	209	209	3.38	3.32	3.30	do	838	693	690
Lespedeza seed [3]	168	183	310	7.32	8.74	10.59	do	1,234	1,596	3,277
Alfalfa seed	361	274	382	2.32	1.95	2.41	do	839	536	923
Beans, dry edible	1,913	1,408	1,671	[1] 671	[1] 742	[1] 735	Bags [4]	12,843	10,440	12,280
Soybeans [5]	1,302	1,153	1,115	14.9	14.6	13.0	Bushels	19,447	16,821	14,488
Cowpeas [5]	1,026	1,227	1,072	10.3	9.0	9.3	do	10,524	11,084	9,954
Peanuts [5]	2,145	2,425	2,093	724	594	640	Pounds	1,553,840	1,440,720	1,340,200
Velvetbeans (all purposes)	1,044	1,401	1,442	[1] 718	[1] 836	[1] 845	Tons	375	586	609
Potatoes	3,366	3,381	3,184	110.8	105.9	99.6	Bushels	372,994	358,009	317,143
Sweetpotatoes	785	926	761	80.3	84.7	85.5	do	63,043	78,431	65,073
Tobacco	2,014	1,414	1,754	798	723	796	Pounds	1,607,484	1,022,558	1,396,174
Apples, total							Bushels	202,415	[6] 140,775	143,827
Apples, commercial							Barrels	34,592	28,592	25,744
Peaches, total							Bushels	[6] 76,586	[6] 42,443	[6] 45,326
Pears, total							do	[6] 23,346	[6] 22,050	[6] 21,192
Grapes, total [7]							Tons	[6] 1,622	[6] 2,204	[6] 1,809
Cherries (12 States)							do	[6] 112	[6] 127	[6] 112
Plums and prunes, fresh (4 States)							do	[6] 117	[6] 152	[6] 112
Prunes, dried (3 States)							do	245	[6] 195	197
Oranges (7 States)							Boxes	50,164	50,930	48,216
Grapefruit (4 States)							do	15,371	15,326	12,689
Lemons (California)							do	7,800	6,715	6,800
Cranberries	28	28	28	24.0	20.4	24.2	Barrels	666	565	668
Pecans							Pounds	77,800	53,560	61,210
Sorgo sirup	259	250	240	68.8	60.8	62.3	Gallons	17,818	15,209	14,961
Sugarcane (Louisiana)	184	223	213	14.8	15.1	14.7	Tons	2,717	3,359	3,125
Cane sirup	103	110	125	139.4	154.4	152.8	Gallons	14,359	16,985	19,106
Sugar beets	713	764	984	11.1	11.9	11.3	Tons	7,903	9,070	11,085
Maple sugar	[8] 12,138	[8] 12,091	[8] 12,076	[9] 1.59	[9] 1.73	[9] 1.55	Pounds	1,646	1,623	1,322
Maple sirup	[8] 12,138	[8] 12,091	[8] 12,076	[9] 1.59	[9] 1.73	[9] 1.55	Gallons	2,213	2,412	2,175
Broomcorn	298	304	296	[1] 303	[1] 244	[1] 221	Tons	45	37	33
Hops	21	22	26	1,234	1,094	1,375	Pounds	26,410	24,058	36,404

[1] Pounds.
[2] For hay and forage, but not included in tame hay.
[3] Bushels of 25 pounds.
[4] Bag of 100 pounds.
[5] Includes the acreage, production, and value of that part of the crop gathered, grazed, or hogged off in the Southern States, but acreage cut green and value of vines cut or saved for hay not included.
[6] Includes some quantities not harvested.
[7] Production is the total for fresh fruit, juice, and raisins.
[8] Trees tapped.
[9] Total equivalent sugar per tree.

Table 456.—*Crop summary: Acreage, yield per acre, and production, 1931–33*—Continued

Crop	Acreage harvested			Yield per acre			Unit	Production		
	1931	1932	1933	1931	1932	1933		1931	1932	1933
	1,000 acres	*1,000 acres*	*1,000 acres*	*(Except where footnotes appear, these units are same as in the unit column)*				*Thousands*	*Thousands*	*Thousands*
Commercial truck crops:										
Asparagus [10]	102.0	110.8	116.5							
Beans, lima [10]	40.6	31.0	28.2							
Beans, snap [10]	167.1	153.7	157.9							
Beets [10]	15.7	13.7	14.4							
Cabbage [10]	150.4	140.3	124.8	6.77	7.04	5.80	Tons	[6] 1,017.2	[6] 987.1	[6] 723.2
Cantaloupes	138.3	135.8	109.0	129	125	117	Crates	[6] 17,817	[6] 17,021	[6] 12,762
Carrots [10]	31.2	29.8	32.4	395	362	326	Bushels	[6] 12,314	[6] 10,815	10,565
Cauliflower	29.4	31.8	30.2	245	243	238	Crates	7,194	[6] 7,730	[6] 7,162
Celery	33.0	35.6	31.2	279	278	276	do	9,204	[6] 9,894	[6] 8,624
Corn, sweet (canning)	356.7	164.9	196.1	2.19	2.35	2.00	Tons	781.6	386.9	393.0
Cucumbers [10]	136.7	77.6	96.6							
Eggplant	3.9	3.6	4.0	208	222	228	Bushels	811	809	910
Lettuce	175.4	163.6	139.1	112	109	123	Crates	19,609	[6] 17,820	17,149
Onions	77.6	91.7	78.2	247	304	266	Bushels	[6] 19,163	[6] 27,906	20,802
Peas, green [10]	306.7	299.2	323.6							
Peppers	18.1	17.3	17.6	242	227	240	Bushels	4,376	3,894	4,227
Potatoes, early	346.8	275.4	252.6	133	121	122	do	46,072	33,320	30,791
Spinach [10]	56.8	54.4	74.1							
Strawberries [10]	150.5	189.6	197.0	74.1	70.5	64.6	Crates	11,156	[6] 13,369	[6] 12,718
Tomatoes [10]	454.8	437.4	412.9							
Watermelons	238.8	233.2	186.0	316	260	269	Number	[6] 75,509	[6] 60,623	49,983
Miscellaneous [11]	39.6	39.5	38.5							
Total truck crops:										
For market (except potatoes)	1,602.4	1,667.6	1,536.2							
For manufacture	1,121.0	787.2	872.1							
Total of crops, listed above	354,852	359,423	327,324							

[6] Includes some quantities not harvested.
[10] Includes production used for canning or manufacture.
[11] Includes following crops in certain States: Artichokes, sweet corn, and kale for market, and pimientos for manufacture.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

Table 457.—*Index numbers of the volume of net agricultural production,*[1] *1919–33*
[Calendar years 1919–27=100]

Year	Grains	Fruits and vegetables	Truck crops	Meat animals	Dairy products	Poultry products	Cotton and cottonseed	Total
1919	101	82	71	96	81	85	91	91
1920	116	102	86	92	80	84	105	97
1921	100	76	74	91	91	95	64	87
1922	100	109	101	97	95	98	77	96
1923	97	108	99	107	103	107	80	101
1924	100	106	111	108	109	100	108	106
1925	95	98	115	102	110	104	128	106
1926	93	116	114	103	114	111	143	111
1927	97	104	129	103	116	116	103	106
1928	106	122	124	105	119	112	114	111
1929	87	102	141	105	122	116	118	109
1930	77	113	141	101	123	119	110	107
1931	80	119	132	103	126	119	134	112
1932 [2]	76	106	137	104	125	116	104	104
1933 [2]	56	106	134	109	126	118	103	100

[1] These indexes are based on estimates of production for sale and for consumption in the farm home. Production fed to livestock or used for seed is not included. For example, instead of total production, only the amounts of corn and oats shipped out of county where grown and only a small percentage of the hay crops are included. The index of dairy products represents total milk production for all purposes. Production of meat animals is represented by total slaughter, including slaughter for farm use. Calendar-year production of livestock and livestock products are here compared with crop production of the same year. Each group index as well as the total is obtained by multiplying the yearly quantities by a 1919–27 average farm price received by producers for each of the commodities, and the sum of these yearly values at average prices, divided by the corresponding average sum for the period 1919–27, taken as 100. The following commodities included in the index contribute about 90 percent of the gross income from agricultural production: Grains—wheat, corn, oats, barley, rye, buckwheat, kafir, rice; fruits and vegetables—grapes, apples, apricots, peaches, pears, cranberries, figs, grapefruit, lemons, olives, oranges, potatoes, sweetpotatoes, dry edible beans; truck crops—asparagus, snap beans, cabbage, cantaloups, cauliflower, celery, cucumbers, lettuce, onions, peas, spinach, strawberries, tomatoes, watermelons; meat animals—cattle, calves, sheep, lambs, hogs; dairy products—milk total production; poultry products—chickens and eggs; cotton and cottonseed; total includes also tobacco, wool, and hay.
[2] Preliminary.

Bureau of Agricultural Economics.

TABLE 458.—*Total harvested acreage and farm value of principal crops, by States, 1931–33* [1]

State and division	Acreage harvested 1931	Acreage harvested 1932	Acreage harvested 1933	Farm value [2] 1931	Farm value [2] 1932	Farm value [2] 1933
	Acres	*Acres*	*Acres*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Maine	1,322,000	1,325,000	1,314,000	23,357	22,235	38,931
New Hampshire	377,000	371,000	370,000	6,612	5,743	7,442
Vermont	1,068,000	1,075,000	1,069,000	17,735	16,552	18,937
Massachusetts	406,600	405,600	403,600	19,106	15,708	18,036
Rhode Island	47,000	48,000	50,000	1,630	1,450	1,793
Connecticut	347,500	343,400	342,600	16,436	12,888	14,216
New York	6,487,200	6,450,400	6,454,600	123,601	91,380	119,150
New Jersey	667,000	663,000	663,000	31,237	26,871	33,665
Pennsylvania	6,215,900	6,128,100	6,097,700	121,331	81,676	115,344
North Atlantic	16,938,200	16,809,500	16,764,500	361,045	274,503	367,514
Ohio	9,972,500	9,428,100	9,336,300	143,345	73,182	112,476
Indiana	10,782,100	10,339,400	9,648,900	113,807	64,661	91,918
Illinois	19,316,500	18,800,600	17,425,500	202,562	117,241	158,653
Michigan	7,456,000	7,299,000	7,222,000	96,887	74,968	102,966
Wisconsin	9,540,400	9,538,500	9,533,200	120,701	95,854	121,481
Minnesota	18,702,500	18,972,800	18,786,700	146,395	109,323	145,245
Iowa	22,296,900	22,397,200	21,741,400	222,071	123,177	214,492
Missouri	14,143,000	13,751,200	12,987,000	131,128	82,655	121,969
North Dakota	16,269,300	21,802,300	18,611,300	59,071	61,602	77,098
South Dakota	15,109,500	17,708,800	8,798,000	44,136	50,500	31,358
Nebraska	21,703,000	21,794,000	21,470,000	140,262	87,501	133,601
Kansas	26,176,700	24,222,900	20,299,700	168,264	82,449	106,104
North Central	191,468,400	196,054,800	175,860,000	1,588,629	1,023,113	1,417,361
Delaware	381,000	377,000	372,000	7,818	5,469	7,311
Maryland	1,661,200	1,614,900	1,635,200	34,761	24,860	31,586
Virginia	3,838,000	3,572,000	3,685,000	76,567	46,331	81,461
West Virginia	1,450,000	1,413,700	1,428,700	27,016	17,869	25,645
North Carolina	6,033,000	5,913,000	5,922,000	132,090	104,167	192,595
South Carolina	4,348,000	4,351,000	3,956,000	70,857	51,822	86,347
Georgia	8,447,000	8,425,500	7,538,000	101,528	67,029	128,863
Florida	1,217,100	1,203,200	1,161,200	77,409	57,920	55,359
South Atlantic	27,375,300	26,870,300	25,698,100	528,046	375,467	609,167
Kentucky	5,398,900	5,126,300	4,989,500	92,717	67,902	94,585
Tennessee	6,100,000	6,044,000	5,712,000	88,805	63,413	101,091
Alabama	7,394,000	7,367,000	6,363,000	86,481	62,083	100,025
Mississippi	6,887,000	6,844,000	5,909,000	99,195	66,637	101,456
Arkansas	6,607,000	6,613,000	5,979,000	107,199	68,651	97,933
Louisiana	4,142,500	3,969,400	3,448,300	72,929	54,556	67,982
Oklahoma	15,673,000	15,025,000	12,734,000	109,740	74,890	122,755
Texas	32,419,000	30,663,000	26,802,000	308,910	233,164	353,378
South Central	84,621,400	81,651,700	71,936,800	965,976	691,296	1,039,205
Montana	4,978,500	7,575,000	6,896,000	34,654	41,033	43,459
Idaho	2,714,000	3,016,000	2,890,000	47,102	34,268	49,802
Wyoming	1,793,000	2,036,000	1,984,000	17,050	13,754	17,618
Colorado	6,591,500	5,768,500	6,109,500	60,124	38,362	58,050
New Mexico	1,722,600	1,574,300	1,450,700	19,716	9,878	17,025
Arizona	483,000	456,000	468,000	16,413	12,494	15,984
Utah	1,113,000	1,186,000	1,174,000	19,626	17,018	19,000
Nevada	240,000	368,000	351,000	3,173	3,242	2,990
Washington	3,555,000	3,427,700	3,359,200	75,390	50,609	77,209
Oregon	2,528,000	2,731,000	2,677,000	43,041	34,556	51,297
California	4,625,000	5,156,000	4,846,000	290,715	239,258	277,077
Western	30,343,600	33,294,500	32,205,400	627,004	494,472	629,511
United States	[3] 350,746,900	[3] 354,680,800	[3] 322,464,800	4,070,700	2,858,851	4,062,758

[1] Includes corn (all), oats, barley, grain sorghum (all), wheat (all), rye, buckwheat, flaxseed, rice, beans (dry edible), soybeans alone, cowpeas alone, peanuts alone, velvetbeans alone, tame hay (all), wild hay, sorgo for forage and hay, timothy seed, red and alsike clover seed, sweetclover seed, lespedeza seed, alfalfa seed. cotton, tobacco, sorgo sirup, sugar cane (all), sugar beets, broomcorn, potatoes, sweetpotatoes, asparagus, snap beans, cabbage, cantaloups, cauliflower, celery, sweet corn (for canning), cucumbers, lettuce, onions, green peas, spinach, tomatoes, watermelons; farm value also includes apples (all), peaches, pears, grapes, cranberries, oranges, hops, cherries, pecans, grapefruit, lemons, limes, apricots, plums, prunes (all), figs, olives, almonds, walnuts, maple products.

[2] Based on price received by producers Dec. 1, except for some early marketed crops for which price for marketing season is used, and differs from prices used in tables 459 and 460.

[3] Differs from total in table 456 in that cranberries, hops, artichokes, beets, carrots, eggplant, kale, lima beans, peppers, pimientos, sweet corn (for market), and strawberries are excluded, and for annual legumes only acreage grown alone is included.

Bureau of Agricultural Economics; estimates of the Crop Reporting Board.

TABLE 459.—*Gross income from farm production, by States, 1930–32*

State	Crops			Livestock and livestock products			Crops and livestock products combined		
	1930	1931	1932[1]	1930	1931	1932[1]	1930	1931	1932[1]
	1,000 dollars	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Maine	46, 258	21, 574	17, 418	30, 896	25, 428	22, 056	77, 154	47, 002	39, 474
New Hampshire	8, 235	5, 583	4, 268	19, 313	15, 524	13, 012	27, 548	21, 107	17, 280
Vermont	12, 815	8, 243	7, 035	40, 109	30, 992	25, 656	52, 924	39, 235	32, 691
Massachusetts	34, 673	27, 098	19, 934	45, 664	38, 261	31, 129	80, 337	65, 359	51, 063
Rhode Island	3, 332	2, 725	1, 802	7, 057	5, 866	4, 880	10, 389	8, 591	6, 682
Connecticut	26, 560	17, 341	12, 533	34, 089	29, 463	25, 271	60, 649	46, 804	37, 804
New York	130, 635	96, 314	68, 726	258, 888	197, 491	151, 274	389, 523	293, 805	220, 000
New Jersey	53, 622	37, 563	32, 761	51, 906	41, 646	34, 384	105, 528	79, 209	67, 145
Pennsylvania	91, 676	75, 372	53, 776	220, 476	174, 966	135, 978	312, 152	250, 338	189, 754
Ohio	85, 572	85, 075	51, 302	247, 338	179, 133	129, 976	332, 910	264, 208	181, 278
Indiana	69, 416	57, 452	36, 189	211, 406	152, 620	112, 901	280, 822	210, 072	149, 090
Illinois	136, 379	107, 463	65, 469	354, 427	236, 366	175, 267	490, 806	343, 829	240, 736
Michigan	81, 558	63, 414	52, 380	154, 526	116, 096	88, 438	236, 084	179, 510	140, 818
Wisconsin	58, 998	33, 935	24, 322	302, 070	221, 465	158, 711	361, 068	255, 400	183, 033
Minnesota	87, 058	48, 113	38, 340	298, 047	220, 198	150, 898	385, 105	268, 311	189, 238
Iowa	88, 398	50, 070	34, 809	539, 199	384, 374	251, 163	627, 597	434, 444	285, 972
Missouri	59, 415	54, 031	41, 327	266, 524	187, 497	140, 727	325, 939	241, 528	182, 054
North Dakota	75, 044	20, 228	32, 730	72, 887	52, 488	38, 634	147, 931	72, 716	71, 364
South Dakota	43, 657	8, 325	18, 652	151, 437	123, 475	53, 135	195, 094	131, 800	71, 787
Nebraska	100, 074	44, 745	29, 200	281, 735	204, 291	123, 534	381, 809	249, 036	152, 734
Kansas	115, 436	91, 640	43, 322	231, 796	163, 488	117, 679	347, 232	255, 128	161, 001
Delaware	9, 013	6, 963	4, 969	11, 102	9, 017	6, 734	20, 115	15, 980	11, 703
Maryland	31, 977	27, 881	19, 995	45, 006	36, 535	29, 568	76, 983	64, 416	49, 563
Virginia	71, 321	63, 165	43, 623	83, 059	66, 854	54, 315	154, 380	130, 019	97, 938
West Virginia	19, 757	21, 070	15, 047	46, 991	37, 810	30, 178	66, 748	58, 880	45, 225
North Carolina	180, 660	117, 808	98, 470	71, 551	59, 616	45, 801	252, 211	177, 424	144, 271
South Carolina	94, 004	60, 216	46, 183	35, 775	28, 287	22, 348	129, 779	88, 503	68, 531
Georgia	148, 103	85, 788	57, 831	63, 823	49, 398	38, 861	211, 926	135, 186	96, 692
Florida	114, 813	83, 556	69, 944	24, 212	20, 635	16, 592	139, 025	104, 191	86, 536
Kentucky	75, 115	68, 357	60, 990	97, 569	72, 070	54, 980	172, 684	140, 427	115, 970
Tennessee	82, 672	67, 281	52, 627	86, 032	61, 404	46, 606	168, 704	128, 685	99, 233
Alabama	116, 352	79, 822	62, 098	57, 763	44, 848	34, 081	174, 115	124, 670	96, 179
Mississippi	114, 574	88, 923	66, 805	52, 747	38, 848	29, 923	167, 321	127, 771	96, 728
Arkansas	75, 907	86, 950	63, 580	50, 866	36, 906	29, 647	126, 773	123, 856	93, 227
Louisiana	91, 294	71, 590	57, 080	38, 778	30, 434	23, 633	130, 072	102, 024	80, 713
Oklahoma	84, 613	75, 529	59, 249	105, 084	77, 746	56, 629	189, 697	153, 275	115, 878
Texas	327, 065	255, 828	222, 114	250, 077	187, 947	132, 044	577, 142	443, 775	354, 158
Montana	33, 427	14, 610	22, 681	59, 960	47, 473	30, 477	93, 387	62, 083	53, 158
Idaho	47, 469	25, 179	21, 955	45, 688	35, 452	24, 756	93, 157	60, 631	46, 711
Wyoming	13, 471	7, 651	5, 185	31, 916	25, 641	18, 845	45, 387	33, 292	24, 030
Colorado	78, 486	36, 738	21, 391	74, 931	58, 528	41, 576	153, 417	95, 266	62, 967
New Mexico	13, 286	11, 342	7, 138	29, 438	21, 292	17, 313	42, 724	32, 634	24, 451
Arizona	23, 832	13, 530	11, 074	20, 757	17, 540	13, 733	44, 589	31, 070	24, 807
Utah	17, 887	10, 745	10, 486	35, 228	27, 487	17, 225	53, 115	38, 232	27, 711
Nevada	1, 520	952	785	11, 897	9, 144	6, 103	13, 417	10, 096	6, 888
Washington	94, 953	61, 366	49, 066	74, 959	58, 138	44, 393	169, 912	119, 504	93, 459
Oregon	48, 633	32, 943	27, 513	62, 136	47, 573	35, 072	110, 769	80, 516	62, 585
California	379, 372	279, 524	247, 136	221, 963	184, 358	140, 166	601, 335	463, 882	387, 302
Total	3, 804, 447	2, 716, 768	2, 115, 177	5, 609, 098	4, 192, 109	3, 026, 302	9, 413, 545	6, 908, 877	5, 141, 479

[1] Preliminary.

Bureau of Agricultural Economics. Totals include sugar beets for "other" States: 1930—6,060; 1931—5,157; 1932—3,867.

TABLE 460.—*Gross income from farm production, United States, by commodities, 1930–32*

Product	Gross income 1930	Gross income 1931	Gross income 1932[1]
	1,000 dollars	*1,000 dollars*	*1,000 dollars*
CROPS			
Corn	204,332	134,883	79,920
Wheat	410,635	251,289	176,617
Oats	79,010	42,179	28,101
Barley	33,296	12,327	14,367
Rye	8,205	3,844	3,145
Buckwheat	3,838	2,845	1,887
Flaxseed	31,138	12,200	9,153
Rice	33,532	21,930	14,694
Grain sorghums	4,021	4,100	2,571
Emmer and spelt	273	88	54
Popcorn	2,285	883	623
Cotton lint	659,032	483,582	397,295
Cottonseed	91,925	44,821	34,155
Tobacco	212,467	131,830	110,910
Hay	100,005	74,888	53,063
Sorgo forage	2,110	1,747	1,380
Hemp	114	12	5
Clover seed (red and alsike)	14,312	6,605	6,954
Sweetclover seed	1,980	1,543	504
Lespedeza seed	228	656	351
Alfalfa seed	11,744	5,703	2,587
Timothy seed	4,069	2,700	1,485
Dry edible beans	51,509	23,961	15,388
Soybeans	10,273	4,992	3,731
Cowpeas	4,567	3,447	2,118
Peanuts	22,831	18,861	11,935
Broomcorn	3,267	1,988	1,410
Potatoes	259,071	145,791	114,405
Sweetpotatoes	50,646	39,886	33,386
Truck crops	363,140	289,449	220,767
Hops	3,462	3,642	4,210
Apples	156,711	125,842	82,110
Peaches	44,142	38,904	18,909
Pears	18,292	13,667	7,635
Cherries	14,688	7,873	5,310
Plums and apricots	4,542	4,064	2,559
Grapes	44,817	36,100	26,372
Other fruits and nuts	177,294	133,693	132,995
Strawberries	50,467	47,306	34,058
Small fruits	19,304	16,568	11,403
CROPS—continued			
Cranberries	5,688	3,902	3,745
Pecans	7,771	6,157	2,962
Sugar beets, for sugar	65,697	46,948	45,855
Sugarcane and sirup	15,421	12,713	14,491
Sorgo sirup	4,774	5,104	3,860
Maple sugar and sirup	8,411	4,508	4,138
Forest products	144,647	105,430	86,810
Farm gardens	213,568	222,346	210,142
Nursery products	53,060	46,363	31,714
Greenhouse products	77,836	66,608	42,938
Total	3,804,447	2,716,768	2,115,177
LIVESTOCK AND LIVESTOCK PRODUCTS			
Cattle and calves	951,480	680,572	502,472
Hogs	1,349,658	912,309	538,023
Sheep and lambs	135,817	107,984	76,586
Horses	8,103	7,531	7,142
Mules	6,122	3,746	3,065
Chickens	382,211	325,663	240,853
Eggs (chicken)	661,414	478,357	358,856
Milk	2,030,853	1,614,394	1,260,424
Wool	68,333	50,414	29,945
Mohair	5,766	3,176	1,485
Honey	9,341	7,963	7,451
Total	5,609,098	4,192,109	3,026,302
Grand total	9,413,545	6,908,877	5,141,479
United States: After deducting for interstate sales of crops, principally seeds, and adding for "other poultry" not estimated by States	9,414,142	6,911,266	5,143,226

[1] Preliminary.

Bureau of Agricultural Economics. Estimated quantities produced, sold, and consumed in farm households times weighted annual prices. Cash income plus value of commodities consumed in farm households equals gross incomes. For feed and seed crops, horses, and mules, value includes sales by farmers in some States eventually bought by farmers in other States. These interfarm sales tend to overestimate the total income from farm production for the country as a whole.

TABLE 461.—*Gross income from farm production by groups of commodities, expenditures, income available for operators' capital, labor, and management and current value of capital employed in agriculture, United States, 1924–32*

Item	1924	1925	1926	1927	1928	1929 [1]	1930 [1]	1931 [1]	1932 [1]
	Million dollars	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*
Crops:									
Grains	1,755	1,496	1,432	1,592	1,513	1,283	779	574	322
Fruits and nuts	671	683	694	690	705	706	567	453	340
Vegetables	953	1,193	1,093	1,062	967	1,132	943	724	596
Sugar crops	104	95	103	104	92	85	94	69	68
Cotton and cottonseed	1,710	1,740	1,251	1,464	1,470	1,389	751	528	431
Tobacco	259	251	237	257	278	286	212	132	111
Other crops	719	689	659	649	650	540	453	334	245
Total crops	6,170	6,147	5,468	5,817	5,675	5,421	3,799	2,714	2,113
Livestock and livestock products:									
Cattle, hogs, and sheep	2,380	2,822	2,922	2,664	2,727	2,805	2,437	1,701	1,117
Poultry and eggs	989	1,114	1,167	1,108	1,202	1,230	1,050	809	603
Dairy products	1,678	1,759	1,805	1,911	1,994	2,323	2,031	1,614	1,260
Wool	87	97	88	86	111	99	68	50	30
Other	33	28	30	30	32	40	29	23	20
Total livestock	5,167	5,820	6,012	5,799	6,066	6,497	5,615	4,197	3,030
Total crops and livestock	11,337	11,968	11,480	11,616	11,741	11,918	9,414	6,911	5,143
Expenditures:									
Current expenditures for production [2]	1,602	1,765	1,789	1,733	1,929	1,949	1,838	1,350	1,069
Depreciation of buildings and equipment [3]	850	896	889	894	894	912	892	843	805
Wages, interest, rent, and taxes [4]	3,186	3,305	3,340	3,389	3,429	3,483	3,067	2,476	1,978
Total deductions	5,638	5,966	6,018	6,016	6,252	6,344	5,797	4,669	3,852
Income available for operators' labor, capital, and management	5,699	6,002	5,462	5,600	5,489	5,574	3,617	2,242	1,291
Amount available for capital and management	1,294	1,555	928	1,099	998	1,055	−479	−976	−1,169
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
Return to capital and management as percentage of operators' net capital	4.3	5.3	3.2	3.9	3.5	3.6	−1.6	−3.9	−6.0

[1] Estimates since 1929 have been adjusted to the revised estimates of production which were made after the 1930 census data became available. Estimates of income from 1924–28 have not yet been adjusted to revised production estimates. The 1929 estimate of income from crops, comparable with the estimates of 1924–28, was $5,609,000,000 and 1929 estimate of livestock was $6,302,000,000; total gross income on old base for 1929 was $11,950,000,000 compared with $11,911,000,000 when revised.

[2] All of the current operating costs except 7.5 percent of fertilizer costs, 9.5 percent of feed, 10 percent of binder twine, and 15 percent of ginning costs which are estimated as paid by nonfarmer landlords.

[3] Depreciation on buildings, estimated at 5 percent of the values of farm buildings, of farm operators exclusive of dwellings, and 21 percent of the value of farm machinery, automobiles and trucks used for production.

[4] Cash wages to hired labor plus an allowance of 25 percent for board and an additional 12½ percent of the cash wage to represent perquisites furnished hired labor and domestic hired labor contributing to production. Includes only that portion of interest payable by farm operators; figured at 75 percent of all interest payable on farm mortgage debt on real estate used in production and interest on all bank loans, other than real estate loans. It is assumed that 70 percent of all taxes on farm property used in production are paid by farm operators and that 72 percent of all rent paid is paid to nonfarmer landlords, the remaining 28 percent being paid to farmer operators owning other farms. Rent payable to nonfarmer landlords in 1932 was $570,000,000.

Bureau of Agricultural Economics.

TABLE 462.—*Current value of agricultural capital, gross income from farm production, and selected expenditures, United States, 1909–32*

Year	Current value of agricultural capital [1]	Gross income from farm production [2]	Selected expenditures: Wages (including board) [3]	Feed [4]	Fertilizer [5]	Farm implements (excluding autos and trucks) [6]	Other farm machinery and their costs of operation [7]	Ginning [8]	Taxes [9]	Interest on mortgages [10]
	Million dollars	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*
1909	41, 354	6, 238	652	300	115	192	--------	33	--------	199
1910	42, 985	6, 643	674	302	137	219	--------	39	--------	210
1911	44, 086	6, 372	673	372	152	217	--------	52	--------	221
1912	46, 081	6, 784	697	336	153	244	--------	45	--------	232
1913	47, 778	6, 975	721	453	172	265	--------	46	256	240
1914	47, 965	7, 028	696	431	188	285	--------	56	261	252
1915	50, 533	7, 395	701	471	158	296	--------	43	286	269
1916	55, 041	8, 914	766	638	163	357	--------	50	306	299
1917	61, 576	12, 832	941	871	217	513	--------	54	343	345
1918	67, 055	15, 101	1, 162	1, 023	297	605	--------	64	366	401
1919	66, 630	16, 935	1, 356	1, 097	326	693	--------	77	462	469
1920	78, 436	13, 566	1, 627	726	359	594	--------	91	568	545
1921	71, 146	8, 927	1, 011	484	217	239	--------	47	600	554
1922	62, 022	9, 944	976	598	210	281	--------	59	599	568
1923	60, 356	11, 041	1, 096	670	229	393	--------	63	608	564
1924	58, 244	11, 337	1, 068	750	231	350	578	84	602	567
1925	57, 189	11, 968	1, 112	828	255	429	716	100	608	568
1926	57, 255	11, 480	1, 154	734	253	460	679	112	618	568
1927	56, 145	11, 616	1, 168	789	234	494	637	79	641	568
1928	56, 561	11, 741	1, 176	897	273	508	802	90	654	563
1929	57, 600	11, 918	1, 187	919	271	578	889	89	668	554
1930	57, 672	9, 414	1, 005	839	256	481	698	75	666	542
1931	52, 276	6, 911	730	497	174	242	525	75	611	510
1932 [11]	43, 316	5, 143	472	359	96	98	441	56	529	486

[1] As of Jan. 1. Includes land, buildings, machinery and livestock. Interpolation between census estimates: Land and buildings based on index of land values per acre and straight line interpolation of total acreage in farms; livestock, annual estimates U.S. Department of Agriculture; machinery, interpolated on basis of estimated values of land and buildings, 1909–19, straight line interpolations, 1920–24 and 1925–30.

[2] 1924–32, table 461; 1909–23 based on items which represent 95 percent of gross income in 1924–32.

[3] Interpolations between census estimates, based on U.S. Department of Agriculture index of farm wages.

[4] Interpolation between census years based on an index of prices paid by farmers for feed and an index of production of feed crops. The product of the 2 indexes was adjusted to equal the census values of feed purchased.

[5] Interpolated between census estimates, based on index of value derived from total fertilizer consumption and U.S. Department of Agriculture index of fertilizer prices paid by farmers.

[6] 1909–19: 1909, 1914, and 1919 census values of farm implements produced adjusted to represent total farm equipment sold in the United States at farm values. Interpolations for other years to 1920 based on gross income from farm production. 1920–30 estimates based largely on factory value of farm implements sold in the United States raised to represent farm values.

[7] Includes estimated cost of operating automobiles, trucks, and tractors; 50 percent of annual farm purchases of autos and trucks.

[8] Annual cotton production, multiplied by ginning costs per bale.

[9] Revised estimates of taxes are based upon study of real estate tax rates by States. Adjustment is made for personal property taxes. Real estate tax is 85 percent and personal property is 15 percent of total.

[10] Interpolations between total farm mortgages for 1910, 1920, 1925, 1928, 1930, using smoothed estimates for 1911–19 derived from value of current agricultural capital, and smooth curve, 1920–30.

[11] Preliminary.

Bureau of Agricultural Economics; tentative estimates of the Bureau.

TABLE 463.—*Total population and farm population, United States: Total number Apr. 15, 1910, and yearly Jan. 1, 1920–34, annual movement to and from farms, and annual net change in the farm population 1920–33* [1]

Year	Total population Jan. 1 [2]	Farm population: Number on Jan. 1	Farm population: Persons who during the year— Left farms for cities	Farm population: Persons who during the year— Arrived at farms from cities	Farm population: Net movement from farms during the year	Farm population: Net loss of farm population during the year
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
1910	[3] 91,972	[4] 32,077				
1920	[3] 105,711	[3] 31,614	896	560	336	[5] 89
1921	107,375	31,703	1,323	759	564	[5] 65
1922	109,040	31,768	2,252	1,115	1,137	478
1923	110,705	31,290	2,162	1,355	807	234
1924	112,370	31,056	2,068	1,581	487	[5] 8
1925	114,035	31,064	2,038	1,336	702	280
1926	115,700	30,784	2,334	1,427	907	503
1927	117,364	30,281	2,162	1,705	457	6
1928	119,029	30,275	2,120	1,698	422	18
1929	120,694	30,257	2,081	1,604	477	88
1930	122,359	30,169	1,723	1,740	[6] 17	[5] 416
1931	123,630	[7] 30,585	1,469	1,683	[6] 214	[5] 656
1932	124,511	[7] 31,241	1,011	1,544	[6] 533	[5] 1,001
1933	125,197	[7] 32,242	1,178	951	227	[5] 267
1934	([8])	[7] 32,509				

[1] Unless otherwise stated, these data are revised estimates based upon information furnished by farm families to the Bureau of Agricultural Economics adjusted to the trends indicated by the census data of 1920 and 1930.
[2] Except for 1910 and 1920, these are estimates by the Bureau of the Census.
[3] Census enumerations as of Apr. 15, 1910, and Jan. 1, 1920.
[4] Estimated by the Bureau of the Census.
[5] Net gain in farm population instead of loss.
[6] Net movement to farms during the year, a reversal of the earlier trend.
[7] Estimates since 1930 subject to revision following next census enumeration.
[8] Estimate not available when Yearbook went to press.

Bureau of Agricultural Economics.

TABLE 464.—*Farm returns, 1924–32*

[Averages of reports of owner operators for their own farms for calendar year]

Item	United States									North Atlantic		East North Central		West North Central		South Atlantic		South Central		Western	
	1924	1925	1926	1927	1928	1929	1930	1931	1932	1931	1932	1931	1932	1931	1932	1931	1932	1931	1932	1931	1932
Reports .... number	15, 103	15, 330	13, 475	13, 859	11, 851	11, 805	6, 228	7, 437	6, 383	821	815	1, 605	1, 292	1, 654	1, 382	624	867	1, 765	1, 582	968	445
Size of farm .... acres	303	304	315	275	284	270	284	249	233	139	128	140	144	345	333	187	190	212	211	462	538
Value of farm real estate, Jan. 1	$14, 323	$14, 157	$13, 379	$12, 543	$12, 299	$12, 090	$12, 009	$10, 778	$8, 170	$8, 083	$7, 024	$9, 802	$9, 087	$13, 775	$12, 154	$6, 251	$5, 451	$6, 778	$5, 567	$19, 773	$9, 781
Value of farm personalty, Jan. 1	2, 937	2, 965	2, 929	2, 893	3, 118	3, 152	3, 156	2, 426	1, 811	3, 151	2, 462	2, 310	1, 914	3, 233	2, 520	1, 262	1, 086	1, 268	1, 026	3, 479	2, 324
Receipts:																					
Crop sales	1, 012	993	926	978	946	1, 029	779	572	337	627	430	280	208	304	223	497	398	527	410	1, 597	514
Sales of livestock	780	897	894	851	936	922	765	471	313	317	238	507	378	848	611	256	170	185	127	556	276
Sales of livestock products	570	585	589	638	689	681	635	482	350	1, 300	1, 013	614	459	356	259	272	173	148	98	525	341
Miscellaneous other	72	76	39	38	37	37	32	24	14	46	25	22	16	21	10	20	10	12	9	42	24
Total	2, 434	2, 551	2, 448	2, 505	2, 608	2, 669	2, 211	1, 549	1, 014	2, 290	1, 706	1, 423	1, 061	1, 529	1, 103	1, 045	751	872	644	2, 720	1, 155
Cash outlay:																					
Hired labor	384	386	386	397	394	399	378	304	185	413	294	188	139	182	158	258	189	221	176	795	222
Livestock bought	222	242	242	238	238	238	172	102	87	132	95	98	92	148	157	97	60	46	41	110	50
Feed bought	248	244	232	243	262	276	276	184	118	433	345	151	100	185	130	114	62	88	34	250	126
Fertilizer	66	69	73	64	67	79	78	55	39	120	90	42	24	7	3	163	115	39	26	63	7
Seed	44	47	48	49	46	43	43	34	31	58	44	35	28	37	47	25	19	22	15	32	41
Taxes on farm property	192	191	183	180	184	187	196	183	149	163	155	191	168	220	211	96	90	111	97	313	193
Machinery and tools	103	119	130	129	151	159	118	62	34	108	62	53	34	69	41	28	20	28	18	103	41
Miscellaneous other	151	179	179	157	176	191	191	167	114	200	168	132	118	165	145	68	68	64	59	455	202
Total	1, 410	1, 477	1, 473	1, 457	1, 518	1, 572	1, 452	1, 091	757	1, 627	1, 253	890	703	1, 013	892	849	623	619	466	2, 121	882
Receipts less cash outlay	1, 024	1, 074	975	1, 048	1, 090	1, 097	759	458	257	663	453	533	358	516	211	196	128	253	178	599	273
Increase in inventory of personal property	181	223	158	242	244	201	−221	−304	−191	−218	−273	−331	−239	−694	−309	19	−87	−37	−90	−357	−95
Net result	1, 205	1, 297	1, 133	1, 290	1, 334	1, 298	538	154	66	445	180	202	119	−178	−98	215	41	216	88	242	178
Interest paid	230	225	215	201	202	199	199	196	173	107	115	170	176	289	294	82	90	121	125	364	239
Spent for farm improvements	133	131	128	141	126	125	92	57	29	99	62	54	30	53	16	28	32	34	22	92	20
Value of food produced and used on the farm [1]	266	274	282	273	269	262	242	200	161	212	184	206	156	202	156	228	188	187	145	180	144

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Value of family labor, including owner [1]	789	793	779	768	768	772	716	608	448	779	616	614	498	695	527	375	298	385	286	821	605
Change in value of real estate during the year (minus sign (−) shows decrease)	+145	+173	+2	+61	+72	+27	−757	−1,281	−1,036	−482	−634	−1,110	−1,167	−2,076	−1,910	−682	−503	−884	−656	−1,998	−1,070

[1] Averages of farms for which the item was reported.

Bureau of Agricultural Economics; compiled from reports of individual farms operated by their owners.
Division averages for 1924 in Agriculture Yearbook, 1925, pp. 1342–1343; for 1925–26 in Agriculture Yearbook, 1927, p. 1133; for 1927–28 in Agriculture Yearbook, 1930, pp. 972–973; and for 1929–30 in Agriculture Yearbook, 1932, pp. 894–895.

TABLE 465.—*Farm returns: Proportion of farmers obtaining net results within specified ranges, 1924–32*

Item	United States									North Atlantic		East North Central		West North Central		South Atlantic		South Central		Western	
	1924	1925	1926	1927	1928	1929	1930	1931	1932	1931	1932	1931	1932	1931	1932	1931	1932	1931	1932	1931	1932
Reports ... number	15,103	15,330	13,475	13,859	11,851	11,805	6,228	7,437	6,383	821	815	1,605	1,292	1,654	1,382	624	867	1,765	1,582	968	445
Size of farm ... acres	303	304	315	275	284	270	284	249	233	139	128	140	144	345	333	187	190	212	211	462	538
Value of farm property Jan. 1 per farm ... dollars	17,260	17,122	16,308	15,436	15,417	15,242	15,165	13,204	9,981	11,234	9,486	12,112	11,001	17,008	14,674	7,513	6,537	8,046	6,593	23,252	12,105
Net result per farm ... do	1,205	1,297	1,133	1,290	1,334	1,298	538	154	66	445	180	202	119	−178	−98	215	41	216	88	242	178
Proportion obtaining—	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
$5,000 or more	2.69	3.00	2.29	3.19	3.12	2.94	1.03	0.27	0.07	0.25	0.25	0.12	-----	-----	-----	0.32	-----	0.06	0.06	1.35	0.23
$3,000 to $4,999	6.10	6.82	5.49	6.42	6.77	6.24	2.37	.63	.18	1.94	.25	.19	0.08	0.06	0.22	.80	0.35	.23	.06	1.86	.23
$2,500 to $2,999	3.61	4.03	3.59	3.86	4.06	4.25	1.96	.63	.25	1.70	.37	.37	.23	.30	.14	.32	.12	.23	.13	1.65	1.12
$2,000 to $2,499	5.99	6.26	5.46	6.53	6.35	6.01	3.20	.90	.36	2.80	.73	.12	.54	.67	.29	.80	.23	.23	.06	2.27	.67
$1,500 to $1,999	9.30	9.92	9.05	9.58	10.35	10.35	5.38	2.14	.97	4.26	3.07	1.99	.93	1.75	.51	1.45	.69	1.53	.25	2.79	1.80
$1,000 to $1,499	15.13	15.44	14.09	15.46	15.23	14.89	9.41	4.65	2.57	9.50	4.42	5.55	2.55	2.96	2.75	3.05	1.38	2.32	1.14	7.13	6.07
$500 to $999	21.86	21.79	22.10	22.07	22.07	22.63	17.23	14.84	9.86	18.64	13.00	16.76	12.70	12.21	9.84	13.78	6.68	14.56	6.57	14.15	13.71
$0 to $499	24.68	22.32	26.43	23.98	23.19	24.76	29.93	39.77	43.08	30.69	38.40	41.74	45.43	30.23	33.50	45.83	43.83	53.99	53.73	30.68	35.28
$0 to −$499	7.85	7.81	8.56	6.68	7.20	6.37	19.76	23.52	33.38	20.22	28.46	24.18	30.34	25.88	33.65	27.56	40.72	23.23	34.96	19.11	30.56
−$500 to −$999	1.57	1.54	1.69	1.28	1.04	1.01	5.54	6.87	6.00	6.10	8.47	6.11	4.34	12.70	11.21	4.33	4.27	2.66	2.28	8.16	6.74
−$1,000 or more	1.22	1.07	1.25	.95	.62	.55	4.19	5.78	3.28	3.90	2.58	2.87	2.86	13.24	7.89	1.76	1.73	.96	.76	10.85	3.59
All farms reporting	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Bureau of Agricultural Economics.
The reports are those tabulated in table 464. For distribution by geographical divisions, see table 476, Yearbook, 1927; table 511, Yearbook, 1930; and table 460, Yearbook, 1932.

TABLE 466.—*Wheat, all: Cost of production, by regions, 1932*

Region	Acreage harvested	Production	Average yield per acre	Gross cost per acre: Prepare and plant	Gross cost per acre: Harvest and thresh	Gross cost per acre: Haul to market	Gross cost per acre: Fertilizer and manure	Gross cost per acre: Seed	Gross cost per acre: Land rent	Gross cost per acre: Miscellaneous [1]	Gross cost per acre: Total	Credit per acre (straw)	Net cost per acre: Including rent	Net cost per acre: Excluding rent	Net cost per bushel: Including rent	Net cost per bushel: Excluding rent
	1,000 acres	*1,000 bushels*	*Bushels*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Western Great Plains [2] (hard red spring wheat)	4,969	69,677	14.0	2.06	1.61	0.66	0.09	0.66	1.36	1.89	8.33	0.22	8.11	6.75	0.58	0.48
Eastern Great Plains (including Red River Valley) [3] (hard red spring wheat)	14,434	157,634	10.9	1.98	1.70	.41	.22	.83	1.85	1.78	8.77	.12	8.65	6.80	.79	.62
Great Lakes dairy [4] (hard red spring wheat)	1,069	22,267	20.8	3.14	2.86	.71	2.00	1.03	3.30	2.09	15.13	.84	14.29	10.99	.69	.53
Western Great Plains [5] (hard red winter wheat)	7,751	61,035	7.9	1.46	1.27	.33	.04	.32	1.66	1.89	6.97	.10	6.87	5.21	.87	.66
Eastern Great Plains [6] (hard red winter wheat)	10,638	135,027	12.7	1.72	1.70	.33	.18	.43	2.52	1.65	8.53	.09	8.44	5.92	.66	.47
Central humid [7] (soft red winter wheat)	2,378	29,561	12.4	2.39	2.31	.46	.96	.61	2.70	1.72	11.15	.41	10.74	8.04	.87	.65
Corn Belt [8] (hard and soft winter wheat)	4,233	77,839	18.4	2.37	2.61	.49	1.29	.77	4.15	1.87	13.55	.47	13.08	8.93	.71	.49
Appalachian highlands and northeastern dairy [9] (soft red winter wheat)	3,925	53,321	13.6	3.53	3.10	.62	3.13	1.01	3.42	2.04	16.85	1.55	15.30	11.88	1.12	.87
Southeastern Cotton Belt [10] (soft red winter wheat)	808	7,679	9.5	2.50	2.33	.57	1.94	.93	3.22	1.54	13.03	.85	12.18	8.96	1.28	.94
Southwestern Cotton Belt [11] (soft red winter wheat)	874	10,820	12.4	1.69	2.13	.49	.21	.49	2.36	1.55	8.92	.13	8.79	6.43	.71	.52
Rocky Mountain and Pacific coast [12] (common white wheat)	6,125	119,216	19.5	2.81	2.53	.71	.50	.70	4.89	2.55	14.69	.52	14.17	9.28	.73	.48
United States	57,204	744,076	13.0	2.10	1.93	.46	.60	.61	2.67	1.89	10.26	.33	9.93	7.26	.76	.56

[1] Includes charges for water for irrigation, twine and sacks, crop insurance, use of implements, use of storage buildings, overhead, and a charge for expenses incurred on wheat acreages abandoned and not harvested.

[2] Includes the western portion of the northern Great Plains extending northwestward from western South Dakota into Montana and including a small portion of southwestern North Dakota, and a portion of northeastern Wyoming. A subhumid climate prevails.

[3] Includes the eastern portion of the northern Great Plains, including the Red River Valley in both South Dakota and Minnesota and extending northwestward from eastern South Dakota into North Dakota and northeastern Montana. A subhumid climate prevails.

[4] Includes Minnesota east of the Red River Valley, with Wisconsin and that part of Michigan lying north of the 2 southern tiers of counties. In Michigan soft red winter and white wheats prevail over the hard red spring wheat. A dairy type of farm prevails.

[5] Includes the western portion of the central Great Plains, including the panhandles of Texas and Oklahoma, the plains of eastern Colorado and western Kansas, eastern Wyoming, and western Nebraska. A subhumid climate prevails.

[6] Includes the eastern portion of the central Great Plains, including a small area in north-central Texas, and a broad band through central Oklahoma, central Kansas, and into Nebraska. A subhumid climate prevails.

[7] Includes Missouri from the tier of counties just north of the Missouri River south to the State line with adjacent parts of eastern Kansas, northeastern Oklahoma, and southwestern Illinois. A humid climate prevails.

[8] Includes the region of heavy corn production in Iowa, southeastern South Dakota, eastern Nebraska, southwestern Minnesota, northeastern Kansas, northern Missouri, northern Illinois, northern Indiana, western Ohio, and the 2 southern tiers of counties in Michigan.

[9] Includes the area of the Appalachian highland, including Kentucky, Virginia, West Virginia, and extending into southeastern Illinois, southern Indiana, eastern Ohio, with all of Pennsylvania, Maryland, Delaware, New Jersey, New York, and the very limited wheat acreage of the New England States.
[10] Includes the States of Tennessee, North Carolina, South Carolina, Georgia, and Alabama.
[11] Includes Arkansas, most of eastern Oklahoma, and Texas, with the exception of the panhandle, and the 12 counties included in the eastern Great Plains area.
[12] Includes the western portions of Montana, Wyoming, and Colorado, and the other States lying westward to the Pacific coast.

Bureau of Agricultural Economics.
Subject to revision. In computing averages, data were weighted by acreage harvested.

TABLE 467.—*Wheat, all: Cost of production, selected States, 1932*

State	Acreage harvested	Production	Average yield per acre	Gross cost per acre								Credit per acre (straw)	Net cost per acre		Net cost per bushel	
				Prepare and plant	Harvest and thresh	Haul to market	Fertilizer and manure	Seed	Land rent	Miscellaneous [1]	Total		Including rent	Excluding rent	Including rent	Excluding rent
	1,000 acres	*1,000 bushels*	*Bushels*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
New York	201	4,086	20.3	5.70	4.35	0.98	3.71	1.20	3.61	2.58	22.13	2.39	19.74	16.13	0.97	0.79
Pennsylvania	898	13,465	15.0	4.46	3.90	.71	4.05	1.29	4.17	2.55	21.13	2.65	18.48	14.31	1.23	.95
Maryland	380	4,940	13.0	2.99	2.98	.63	3.21	.89	3.73	1.97	16.40	1.59	14.81	11.08	1.14	.85
Virginia	579	6,253	10.8	3.12	2.95	.68	3.00	.97	3.30	1.85	15.87	1.27	14.60	11.30	1.35	1.05
West Virginia	116	1,276	11.0	3.91	2.67	.65	2.70	1.20	3.10	1.84	16.07	1.61	14.46	11.36	1.31	1.03
Michigan	702	16,771	23.9	3.49	3.05	.66	2.83	.98	3.01	2.10	16.12	.97	15.15	12.14	.63	.51
Ohio	1,585	32,456	20.5	2.84	2.97	.58	2.54	.96	3.63	2.01	15.53	.86	14.67	11.04	.72	.54
Indiana	1,468	23,502	16.0	2.70	2.68	.49	2.42	.79	3.50	1.71	14.29	.79	13.50	10.00	.84	.62
Illinois	1,652	24,978	15.1	2.32	2.42	.48	.94	.68	3.93	1.73	12.50	.35	12.15	8.22	.80	.54
Iowa	273	4,350	15.9	2.06	2.46	.50	.20	.84	5.70	2.36	14.12	.33	13.79	8.09	.87	.51
Minnesota	1,462	20,839	14.3	2.07	2.20	.48	.64	.95	2.99	1.99	11.32	.25	11.07	8.08	.77	.57
North Dakota	10,639	110,396	10.4	2.09	1.62	.44	.21	.80	1.78	1.74	8.68	.11	8.57	6.79	.82	.65
South Dakota	3,958	53,468	13.5	1.57	1.72	.45	.13	.77	1.70	1.71	8.05	.16	7.89	6.19	.58	.46
Montana	4,070	55,610	13.7	2.37	1.75	.66	.08	.72	1.52	2.12	9.22	.25	8.97	7.45	.65	.54
Nebraska	2,277	27,958	12.3	1.79	1.68	.33	.20	.46	3.00	1.86	9.32	.12	9.20	6.20	.75	.50
Kansas	10,365	120,178	11.6	1.59	1.48	.33	.11	.40	2.23	1.94	8.08	.06	8.02	5.79	.69	.50
Missouri	1,404	15,733	11.2	2.51	2.34	.44	.97	.63	2.73	1.86	11.48	.55	10.93	8.20	.98	.73
Oklahoma	3,966	43,626	11.0	1.67	1.64	.37	.10	.36	1.87	1.42	7.43	.11	7.32	5.45	.67	.50
Texas	3,330	28,293	8.5	1.51	1.40	.36	.06	.30	1.53	1.35	6.51	.11	6.40	4.87	.75	.57

[1] Includes charges for water for irrigation, twine and sacks, crop insurance, use of implements, use of storage buildings, overhead, and a charge for expenses incurred on wheat acreages abandoned and not harvested.

Bureau of Agricultural Economics.
Subject to revision. In computing averages ,data were weighted by acreage harvested.

TABLE 468.—*Cotton: Cost of production, selected States, and regions, 1932* [1]

State and region	Acreage harvested	Production of lint in 500-pound gross-weight bales	Average yield of lint per acre [2]	Gross cost per acre: Prepare and plant	Cultivate and hoe	Harvest [3]	Fertilizer and manure	Seed	Ginning	Miscellaneous [4]	Land rent	Total	Credit per acre for cottonseed	Net cost of lint: Per acre: Including rent	Excluding rent	Per pound: Including rent	Excluding rent
STATE	*1,000 acres*	*1,000 bales*	*Pounds*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Cents*	*Cents*
North Carolina	1,251	660	264	3.05	5.12	4.84	3.81	0.56	1.64	2.30	3.75	25.07	2.58	22.49	18.74	8.5	7.1
South Carolina	1,661	716	216	3.05	3.99	3.92	3.01	.58	1.22	2.45	2.50	20.72	2.11	18.61	16.11	8.6	7.5
Georgia	2,651	854	161	2.73	4.00	2.92	2.99	.50	1.00	2.36	2.06	18.56	1.71	16.85	14.79	10.5	9.2
Alabama	3,021	947	157	2.92	4.33	2.64	2.14	.53	.98	2.23	2.80	18.57	1.59	16.98	14.18	10.8	9.0
Tennessee	1,064	480	226	3.05	4.51	4.09	1.34	.57	1.80	2.10	3.87	21.33	1.96	19.37	15.50	8.6	6.9
Mississippi	3,839	1,180	154	2.61	4.90	3.24	.87	.64	1.27	2.18	3.80	19.51	1.61	17.90	14.10	11.6	9.2
Louisiana	1,688	611	181	2.85	5.71	3.54	.95	.58	1.39	2.71	3.56	21.29	1.77	19.52	15.96	10.8	8.8
Arkansas	3,378	1,327	196	2.82	4.77	3.81	.74	.63	1.68	2.13	3.45	20.03	1.87	18.16	14.71	9.3	7.5
Oklahoma	3,108	1,084	174	2.03	2.82	3.61	.25	.45	2.02	1.67	2.36	15.21	1.49	13.72	11.36	7.9	6.5
Texas	13,334	4,500	169	1.92	2.84	3.04	.25	.50	1.67	1.65	2.95	14.82	1.59	13.23	10.28	7.8	6.1
Other States [5]	926	628	339	3.64	5.02	6.57	1.23	.55	3.41	4.71	6.87	32.00	3.47	28.53	21.66	8.4	6.4
United States [6]	35,921	12,987	181	2.44	3.83	3.39	1.07	.54	1.56	2.06	3.12	18.01	1.75	16.26	13.14	9.0	7.3
REGION																	
Coastal Plain [7]	5,811	1,821	157	2.69	4.47	3.02	2.36	.55	1.04	2.28	2.50	18.91	1.58	17.33	14.83	11.0	9.4
Piedmont [8]	2,985	1,254	210	3.12	4.23	3.73	3.03	.56	1.23	2.36	2.58	20.84	2.15	18.69	16.11	8.9	7.7
Eastern hilly areas [9]	3,435	1,297	189	2.99	4.28	3.27	1.81	.56	1.34	2.07	3.25	19.57	1.72	17.85	14.60	9.4	7.7
River bottom areas [10]	3,834	1,688	220	2.63	5.84	4.48	.51	.65	2.01	2.59	4.93	23.64	2.21	21.43	16.50	9.7	7.5
Western hilly areas [11]	6,695	2,088	156	2.66	4.10	3.10	.67	.56	1.31	1.88	2.82	17.10	1.47	15.63	12.81	10.0	8.2
Gulf coast prairie and Texas black prairie [12]	5,783	1,731	150	1.81	3.07	2.73	.24	.51	1.34	1.69	3.48	14.87	1.44	13.43	9.95	9.0	6.6
Western dry areas [13]	6,899	2,774	201	1.73	2.07	3.63	.17	.45	2.30	1.51	2.30	14.16	1.85	12.31	10.01	6.1	5.0
Irrigated areas [14]	479	334	348	4.82	4.53	6.50	.59	.61	3.55	8.17	10.23	39.00	3.79	35.21	24.98	10.1	7.2

[1] Subject to revision. In computing averages, data were weighted by acreage harvested.
[2] Obtained by dividing the production of lint in terms of 500-pound gross-weight bales by the acreage harvested.
[3] Includes picking and snapping cotton, hauling to gin, and hauling lint and cottonseed to local markets.
[4] Includes miscellaneous labor, irrigation (including water), dusting, picking sacks and sheets, crop insurance, use of implements, use of storage buildings, and overhead.
[5] Includes the States of Virginia, Florida, Missouri, Arizona, New Mexico, and California.
[6] Includes the 16 States of Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Tennessee, Mississippi, Louisiana, Arkansas, Missouri, Oklahoma, Texas, New Mexico, Arizona, and California, which produced 99.9 percent of the United States cotton crop of 1932.
[7] Includes the lower and upper coastal plain of Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and the black prairie belt of Alabama and Mississippi.
[8] Includes the rolling and hilly uplands of Virginia, North Carolina, South Carolina, Georgia, and Alabama, which border the Blue Ridge Mountains on the east and south.
[9] Includes Tennessee exclusive of Lake County, the hilly cotton lands of northern Mississippi, northern Alabama, and northern Georgia, and western North Carolina.
[10] Includes the principal bottomlands of the Mississippi, the Arkansas, and the Red Rivers.
[11] Includes the hilly lands of Arkansas, Louisiana, southern Missouri, eastern Texas, and eastern Oklahoma.
[12] Includes the gulf-coast prairie of Texas and Louisiana, and the black waxy prairie of Texas.
[13] Includes the dry-land areas of western Oklahoma, western Texas, and eastern New Mexico.
[14] Includes the irrigated cotton lands of California, Arizona, New Mexico, and Texas.

Bureau of Agricultural Economics.

TABLE 469.—*Corn and oats: Cost of production, 1932* [1]

Crop and group of States	Acreage harvested	Production	Average yield per acre	Gross cost per acre: Prepare and plant	Cultivate and hoe	Harvest [2]	Haul to market	Fertilizer and manure	Seed	Miscellaneous [3]	Land rent	Total	Credit per acre for by-product	Net cost per acre: Including rent	Excluding rent	Net cost per bushel: Including rent	Excluding rent
Corn (for grain):	*1,000 acres*	*1,000 bushels*	*Bushels*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Eastern:																	
North [4]	9,213	222,403	24.1	3.69	2.55	2.12	1.24	2.62	0.29	2.86	3.62	18.99	1.62	17.37	13.75	0.72	0.57
South [5]	13,766	162,106	11.8	2.26	2.04	1.06	.67	1.41	.24	1.68	2.47	11.83	.74	11.09	8.62	.94	.73
Ohio, Indiana, Michigan, Wisconsin, and Minnesota	12,467	454,748	36.5	3.26	1.86	2.13	1.17	2.30	.24	2.77	3.91	17.64	1.05	16.59	12.68	.45	.35
Illinois and Iowa	19,029	818,247	43.0	2.46	1.45	1.33	1.05	1.23	.22	2.57	5.35	15.66	.33	15.33	9.98	.36	.23
Missouri and Nebraska	15,882	432,374	27.2	1.95	1.33	1.01	.81	.71	.20	2.20	3.52	11.73	.38	11.35	7.83	.42	.29
Kansas, South Dakota, and North Dakota	10,021	178,241	17.8	1.74	1.18	.86	.64	.54	.19	2.03	2.68	9.86	.34	9.52	6.84	.53	.38
Southwestern [6]	11,830	215,854	18.2	1.96	1.79	1.02	.86	.51	.24	1.50	2.66	10.54	.32	10.22	7.56	.56	.42
Western [7]	2,207	23,330	10.6	2.06	1.28	1.00	.72	.33	.21	1.89	2.20	9.69	.77	8.92	6.72	.84	.63
United States	94,415	2,507,303	26.6	2.44	1.69	1.33	.92	1.28	.23	2.24	3.59	13.72	.64	13.08	9.49	.49	.36
Oats:																	
Eastern:																	
North [4]	2,715	71,762	26.4	4.09	--------	3.70	.80	2.03	1.10	2.36	3.37	17.45	1.92	15.53	12.16	.59	.46
South [5]	1,110	21,410	19.3	1.76	--------	2.28	.62	.94	.99	1.47	2.40	10.46	.87	9.59	7.19	.50	.37
Ohio and Indiana	3,556	104,294	29.3	1.84	--------	2.56	.55	.61	.59	1.84	3.47	11.46	.67	10.79	7.32	.37	.25
Michigan, Wisconsin, and Minnesota	8,443	289,400	34.3	2.48	--------	2.64	.75	.63	.81	2.17	3.47	12.95	.95	12.00	8.53	.35	.25
Illinois and Iowa	10,620	385,888	36.3	1.18	--------	2.21	.59	.17	.67	1.88	4.85	11.55	.52	11.03	6.18	.30	.17
Missouri, Nebraska, Kansas, South Dakota, and North Dakota	10,345	263,119	25.4	1.49	--------	2.08	.50	.31	.62	1.75	2.54	9.29	.32	8.97	6.43	.35	.25
Southwestern [6]	3,217	67,884	21.1	1.56	--------	1.95	.50	.06	.53	1.39	2.19	8.18	.25	7.93	5.74	.38	.27
Western [7]	1,419	42,901	30.2	3.04	--------	3.02	.93	.30	.94	2.74	3.34	14.31	.78	13.53	10.19	.45	.34
United States	41,425	1,246,658	30.1	1.89	--------	2.41	.62	.49	.72	1.91	3.46	11.50	.67	10.83	7.37	.36	.24

[1] Subject to revision. States grouped mainly on a basis of production practices and yields. In computing averages, data were weighted by acreage harvested.
[2] Includes threshing for oats.
[3] Includes charges for water for irrigation, twine and sacks, crop insurance, use of implements, use of storage buildings and overhead.
[4] Includes the 6 New England States, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, West Virginia, Kentucky, and Tennessee.
[5] Includes North Carolina, South Carolina, Georgia, Florida, Alabama, and Mississippi.
[6] Includes Arkansas, Louisiana, Oklahoma, and Texas.
[7] Includes Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, and California.

Bureau of Agricultural Economics.

Table 470.—*Index numbers of prices paid by farmers, 1910–33*

[Calendar years 1910–14=100]

Year	Commodities used in production							Wage rates paid to hired labor	Commodities bought for use in production plus wages paid to hired labor	Commodities bought for family maintenance [2]	All commodities bought for use in production and family maintenance
	Feed	Machinery	Fertilizer	Building materials for other than house	Equipment and supplies	Seed [1]	All commodities bought for use in production				
1910	93	102	99	100	101	------	98	97	98	98	98
1911	107	101	99	102	100	------	103	97	101	100	102
1912	91	102	100	103	100	103	98	101	99	101	99
1913	107	98	102	101	100	97	102	104	103	100	101
1914	102	96	100	93	99	99	99	101	99	102	100
1915	100	100	112	102	106	120	104	102	103	107	105
1916	130	107	120	117	129	142	124	112	121	124	124
1917	184	126	137	137	156	149	151	140	149	147	149
1918	193	155	170	161	181	190	174	176	174	177	175
1919	211	161	182	189	180	280	192	206	195	210	200
1920	137	167	186	205	189	152	174	239	189	222	194
1921	97	156	156	156	152	134	141	150	143	161	150
1922	123	142	129	159	140	130	139	146	141	156	146
1923	134	146	126	161	136	142	141	166	147	160	149
1924	142	152	120	161	133	151	143	166	148	159	150
1925	141	153	129	164	140	172	147	168	152	164	154
1926	137	154	126	162	144	214	146	171	152	162	153
1927	138	154	121	160	141	197	145	170	151	159	151
1928	148	154	131	158	138	179	148	169	153	160	153
1929	145	153	130	159	136	185	147	170	153	158	152
1930	132	152	126	155	131	174	140	152	143	148	144
1931	93	150	115	139	116	152	122	116	120	126	124
1932	69	141	99	126	107	102	107	86	102	108	107
1933	79	137	96	129	103	95	108	80	101	109	109

[1] 1912–14=100.

[2] Includes food, clothing, household operating expenses, furniture and furnishing, and building material for house.

Bureau of Agricultural Economics, compiled from prices reported to the Department of Agriculture by retail dealers throughout the United States.

The index numbers include only commodities bought by farmers; the commodities being weighted according to purchases reported by actual farmers in farm management and rural-life studies from 1920 to 1925.

Table 471.—*Index numbers of farm prices, by groups, 1910–33*

[August 1909–July 1914=100]

Year	Calendar year							Year beginning July 1 of year shown						
	Grains	Fruits and vegetables	Meat animals	Dairy products	Poultry products	Cotton and cotton seed	All groups	Grains	Fruits and vegetables	Meat animals	Dairy products	Poultry products	Cotton and cotton seed	All groups
1910	104	91	103	100	104	113	103	95	96	94	98	95	114	98
1911	96	106	87	97	91	101	95	107	120	88	101	98	84	97
1912	106	110	95	103	101	87	99	93	87	104	101	97	93	97
1913	92	92	108	100	101	97	100	98	105	111	101	106	99	103
1914	103	100	112	100	105	85	102	120	85	108	99	104	69	101
1915	120	83	104	98	103	78	100	109	98	110	98	104	94	104
1916	126	123	120	102	116	119	117	172	186	143	112	138	148	146
1917	217	202	173	125	157	187	176	229	162	192	139	169	229	192
1918	226	162	202	152	185	245	200	226	170	210	162	194	234	203
1919	231	189	206	173	206	247	209	246	252	190	185	217	286	220
1920	231	249	173	188	222	248	205	164	163	140	170	191	140	152
1921	112	148	108	148	161	101	116	102	175	107	137	150	129	119
1922	105	152	113	134	139	156	123	111	129	110	141	142	194	130
1923	114	136	106	148	145	216	134	112	131	104	144	141	224	132
1924	129	124	109	134	147	211	134	155	134	125	131	158	188	142
1925	156	160	139	137	161	177	147	140	200	144	139	157	151	143
1926	129	189	146	136	156	122	136	124	153	142	137	148	106	129
1927	128	155	139	138	141	128	131	136	160	141	138	146	154	138
1928	130	146	150	140	150	152	139	119	119	158	141	154	150	137
1929	121	136	156	140	159	145	138	117	169	150	133	152	130	133
1930	100	158	134	123	126	102	117	82	125	112	109	105	79	97
1931	63	98	93	94	96	63	80	51	79	73	83	85	48	65
1932	44	71	63	70	80	46	57	42	66	60	65	78	51	56
1933	62	80	59	69	74	64	63	------	------	------	------	------	------	------

Bureau of Agricultural Economics. See footnotes table 472.

Table 472.—*Index numbers of farm prices, United States, 1924–33*

[August 1909–July 1914=100]

Group and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
GRAINS												
1924	110	113	114	113	114	116	130	141	140	150	147	155
1925	172	178	172	152	159	164	152	157	148	135	138	140
1926 [1]	143	140	133	131	131	130	125	128	121	123	121	120
1927 [1]	120	122	121	119	127	140	139	138	134	128	120	123
1928 [1]	125	128	136	144	160	152	142	120	117	116	110	112
1929 [1]	115	123	124	120	113	111	122	129	131	128	118	119
1930 [1]	118	115	107	110	105	106	92	101	100	92	80	80
1931 [1]	77	75	74	74	74	67	57	54	50	46	57	52
1932 [1]	52	51	51	50	49	44	42	43	41	36	34	33
1933 [1]	34	34	36	47	62	63	94	81	78	68	74	73
FRUITS AND VEGETABLES												
1924	118	123	123	128	132	146	142	138	113	109	108	110
1925	122	131	138	146	162	184	178	178	142	152	194	194
1926 [2]	214	218	220	253	240	216	195	166	136	136	142	137
1927 [2]	140	142	140	147	158	201	195	172	145	138	136	141
1928 [2]	144	153	174	179	181	168	156	137	127	114	109	108
1929 [2]	109	111	112	110	119	120	136	160	160	168	159	163
1930 [2]	167	168	169	187	193	193	173	149	148	127	114	108
1931 [2]	108	109	109	120	119	114	110	97	83	70	68	68
1932 [2]	70	68	73	78	80	82	83	79	68	59	57	59
1933 [2]	59	57	60	66	68	74	103	120	101	86	81	83
MEAT ANIMALS												
1924	101	102	104	106	107	105	103	116	115	121	115	113
1925	123	126	145	146	139	139	148	149	143	141	136	136
1926	140	146	147	146	148	154	152	144	148	148	142	140
1927	140	143	144	143	137	129	131	136	142	145	141	138
1928	138	139	139	142	151	150	157	162	174	160	150	143
1929	146	150	160	164	164	163	167	165	156	151	144	143
1930	146	150	151	146	142	141	127	119	128	123	118	112
1931	112	106	106	106	99	91	92	92	86	79	76	68
1932	68	65	69	66	59	57	72	69	67	60	57	52
1933	51	53	56	57	65	66	66	63	62	63	59	52
DAIRY PRODUCTS												
1924	152	150	146	134	128	126	123	120	126	130	132	137
1925	134	134	137	132	132	130	131	135	137	146	146	146
1926	147	143	141	133	130	128	129	128	133	134	141	144
1927	144	143	139	140	136	132	130	129	135	139	141	145
1928	145	145	142	139	136	134	134	135	141	143	144	146
1929	145	144	144	142	139	135	135	137	139	141	142	140
1930	135	129	126	126	123	118	115	117	123	125	124	117
1931	107	101	101	99	91	86	85	87	92	95	95	92
1932	85	79	76	74	69	62	63	65	67	68	68	69
1933	68	62	59	59	63	65	71	72	76	78	78	76
POULTRY PRODUCTS												
1924	162	157	109	105	109	115	121	132	153	176	203	217
1925	213	166	124	127	131	135	141	148	152	175	208	213
1926	172	145	128	133	135	138	137	137	155	173	202	212
1927	173	145	115	114	112	102	112	122	143	167	189	195
1928	177	144	122	121	128	127	134	140	156	168	185	197
1929	161	158	144	127	134	140	143	151	165	181	200	204
1930	178	154	115	117	110	103	101	107	125	129	146	127
1931	110	79	92	90	77	81	83	93	99	110	123	120
1932	87	70	61	60	60	59	65	75	84	102	115	121
1933	96	57	54	56	62	55	67	67	77	94	105	95
COTTON AND COTTONSEED												
1924	255	247	219	226	222	219	215	219	175	182	179	176
1925	182	183	195	189	184	183	186	186	178	171	144	139
1926	138	142	133	135	130	132	126	130	134	94	88	81
1927	85	94	102	101	113	119	125	136	179	169	162	153
1928	152	141	147	154	166	162	170	153	142	147	146	148
1929	148	149	155	152	148	146	145	146	146	141	132	130
1930	128	121	113	120	119	115	99	94	83	76	80	73
1931	72	76	80	78	74	65	71	53	47	42	50	45
1932	45	47	50	46	42	37	41	51	57	51	47	43
1933	45	44	48	49	65	69	84	71	69	71	76	77

[1] Kafir omitted. [2] Onions and cabbage omitted.

TABLE 472.—*Index numbers of farm prices, United States, 1924–33*—Continued

[August 1909–July 1914=100]

Group and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
ALL GROUPS												
1924	137	136	131	130	129	130	132	139	132	138	137	139
1925	146	146	151	147	146	148	149	152	144	143	144	143
1926 [3]	143	143	140	140	139	139	136	133	134	130	130	127
1927 [3]	126	127	126	125	126	130	130	132	140	139	137	137
1928 [3]	137	135	137	140	148	145	145	139	141	137	134	134
1929 [3]	133	136	140	138	136	135	140	143	141	140	136	135
1930 [3]	134	131	126	127	124	123	111	108	111	106	103	97
1931 [3]	94	90	91	91	86	80	79	75	72	68	71	66
1932 [3]	63	60	61	59	56	52	57	59	59	56	54	52
1933 [3]	51	49	50	53	62	64	76	72	70	70	71	68

[3] Kafir, onions, and cabbage omitted.

Bureau of Agricultural Economics; prices of farm production received by producers collected monthly from a list of about 12,000 special price reporters.

This list is made up almost entirely of country town dealers, elevator managers, buyers, and merchants. The commodities by groups are as follows: Grains—wheat, corn, oats, barley, rye, kafir; fruits and vegetables—apples, oranges, grapefruit, potatoes, sweetpotatoes, beans, onions, cabbage; meat animals—beef cattle, calves, hogs, sheep, lambs; dairy products—butter (represents butter, butterfat, and cream), milk; poultry products—chickens, eggs; cotton and cottonseed; all groups includes also horses (represents horses and mules), hay, flax, tobacco, and wool.

TABLE 473.—*Index numbers of wholesale prices by groups of commodities, United States, 1910–33* [1]

[Calendar years 1910–14=100]

Year	Farm products	Foods	Hides and leather products	Textile products	Fuel and lighting	Metals and metal products	Building materials	Chemicals and drugs	House furnishing goods	Miscellaneous	All commodities
1910	104	101	93	104	90	100	100	101	99	139	103
1911	94	96	91	99	89	95	100	100	96	99	95
1912	102	104	100	99	98	105	101	99	97	97	101
1913	100	100	106	102	116	106	103	99	103	85	102
1914	100	100	110	97	107	94	96	100	104	82	99
1915	100	101	117	96	98	101	97	138	103	79	102
1916	118	117	145	125	141	137	122	198	112	91	125
1917	181	162	192	175	200	177	160	203	136	111	172
1918	208	185	195	244	207	160	179	224	171	122	192
1919	221	201	270	240	198	154	209	193	194	126	202
1920	211	213	266	293	311	175	272	203	260	152	225
1921	124	140	169	168	184	138	176	142	207	99	142
1922	132	136	162	178	204	121	176	124	190	84	141
1923	138	144	162	198	185	128	197	124	200	91	147
1924	140	141	157	190	175	125	185	122	192	85	143
1925	154	155	163	192	183	121	184	125	189	99	151
1926	140	155	155	178	190	117	181	123	183	91	146
1927	139	150	167	170	168	113	172	119	179	83	139
1928	148	157	188	170	160	114	170	118	174	78	141
1929	147	155	169	161	158	118	173	116	173	75	139
1930	124	140	155	143	149	108	163	110	170	71	126
1931	91	116	134	118	128	99	144	98	156	63	107
1932	68	95	113	98	133	94	129	90	138	58	95
1933	72	94	125	115	126	94	140	89	139	57	96

[1] Computed by reducing to a 1910–14 base the Bureau of Labor Statistics series, 1926=100; the index numbers for each group on the 1926 base are divided by the monthly averages for 1910–14. The averages used for each group are as follows: Farm products, 71.3; foods, 64.5; hides and leather products, 64.5; textile products, 56.3; fuel and lighting, 52.7; metals and metal products, 85.3; building materials, 55.2; chemicals and drugs, 81.2; house furnishing goods, 54.6; miscellaneous, 110.1; and all commodities, 68.5.

Bureau of Agricultural Economics.

TABLE 474.—*Farm-wage rates: Averages and index numbers, 1909–33*

Year	Average yearly farm wage[1]: Per month—With board	Average yearly farm wage[1]: Per month—Without board	Average yearly farm wage[1]: Per day—With board	Average yearly farm wage[1]: Per day—Without board	Weighted average wage rate per month[2]	Index numbers of farm wages[3]	Year	Average yearly farm wage[1]: Per month—With board	Average yearly farm wage[1]: Per month—Without board	Average yearly farm wage[1]: Per day—With board	Average yearly farm wage[1]: Per day—Without board	Weighted average wage rate per month[2]	Index numbers of farm wages[3]
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*			*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	
1909	20.48	28.09	1.04	1.31	23.00	96	1922	29.31	42.09	1.64	2.14	34.91	146
1910	19.58	28.04	1.07	1.40	23.08	97	1923	33.09	46.74	1.91	2.45	39.64	166
1911	19.85	28.33	1.07	1.40	23.25	97	1924[4]	33.34	47.22	1.88	2.44	39.67	166
1912	20.46	29.14	1.12	1.44	24.01	101	1925[4]	33.88	47.80	1.89	2.46	40.12	168
1913	21.27	30.21	1.15	1.48	24.83	104	1926[4]	34.86	48.86	1.91	2.48	40.88	171
1914	20.90	29.72	1.11	1.44	24.26	101	1927[4]	34.58	48.63	1.90	2.46	40.60	170
1915	21.08	29.97	1.12	1.45	24.46	102	1928[4]	34.66	48.65	1.88	2.43	40.44	169
1916	23.04	32.58	1.24	1.60	26.83	112	1929[4]	34.74	49.08	1.88	2.42	40.52	170
1917	28.64	40.19	1.56	2.00	33.42	140	1930[4]	31.14	44.59	1.65	2.16	36.24	152
1918	35.12	49.13	2.05	2.61	42.12	176	1931[4]	23.60	35.03	1.22	1.65	27.61	116
1919	40.14	56.77	2.44	3.10	49.11	206	1932[4]	17.53	26.67	.88	1.21	20.46	86
1920	47.24	65.05	2.84	3.56	57.01	239	1933[4]	15.86	24.51	.86	1.18	19.17	80
1921	30.25	43.58	1.66	2.17	35.77	150							

[1] Yearly averages are from reports by crop reporters, giving average wages for the year in their localities.
[2] This column has significance only as an essential step in computing the wage index.
[3] Calendar years 1910–14=100.
[4] Weighted average of quarterly reports, April (weight 1), July (weight 5), October (weight 5), and January of the following year (weight 1).

Bureau of Agricultural Economics.

TABLE 475.—*Wages for male farm labor, by geographic divisions, quarterly, 1933*

Division	Per month, with board: Jan.	Apr.	July	Oct.	Per month, without board: Jan.	Apr.	July	Oct.	Per day, with board[1]: Jan.	Apr.	July	Oct.	Per day, without board[1]: Jan.	Apr.	July	Oct.
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
New England	24.80	23.22	24.73	27.28	43.87	42.31	42.87	45.79	1.32	1.26	1.37	1.54	1.96	1.87	1.96	2.17
Middle Atlantic	20.52	19.91	21.18	22.36	35.94	33.87	34.57	36.13	1.18	1.18	1.25	1.31	1.72	1.66	1.73	1.82
East North Central	16.05	15.91	17.03	17.61	25.48	24.86	25.71	26.80	.89	.87	.96	1.00	1.19	1.18	1.31	1.38
West North Central	14.48	16.28	17.26	17.52	24.29	24.77	25.89	26.32	.81	.83	.92	.98	1.16	1.19	1.27	1.35
South Atlantic	11.16	10.62	11.53	13.06	17.09	16.37	17.52	19.46	.56	.54	.60	.70	.78	.75	.79	.91
East South Central	10.57	10.39	11.01	12.00	15.48	15.36	16.05	17.09	.52	.52	.55	.62	.68	.67	.73	.83
West South Central	12.74	12.10	13.08	15.78	19.53	18.44	19.57	22.43	.62	.58	.67	.80	.83	.82	.87	1.03
Mountain	20.71	21.58	24.17	25.88	32.06	32.72	35.52	36.53	.99	1.00	1.08	1.24	1.40	1.40	1.51	1.62
Pacific	26.05	24.74	28.29	30.30	42.82	40.57	46.27	49.04	1.13	1.12	1.21	1.36	1.70	1.66	1.79	2.06
United States	14.77	14.67	15.84	17.19	23.62	22.98	24.27	25.89	.76	.75	.82	.91	1.06	1.05	1.12	1.25

[1] Includes piecework.

Bureau of Agricultural Economics; as reported by field and crop reporters.

TABLE 476.—*Farm real estate: Index numbers of estimated value per acre, by geographic divisions, 1912–33* [1]

[1912–14=100]

Year	New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific	United States
1912	99	98	97	97	98	97	96	98	94	97
1913	101	100	100	100	100	100	100	102	99	100
1914	100	102	103	103	103	103	104	100	106	103
1915	99	100	104	105	98	99	100	98	107	103
1916	102	104	110	114	108	109	103	98	111	108
1917	112	112	116	122	119	120	116	106	122	117
1918	117	117	127	134	135	140	134	117	129	129
1919	123	121	135	147	161	162	143	130	134	140
1920	140	136	161	184	198	199	177	151	156	170
1921	135	127	151	174	174	163	159	133	155	157
1922	134	118	132	150	146	149	136	122	151	139
1923	130	116	128	142	152	149	132	115	148	135
1924	128	114	121	132	151	142	136	110	147	130
1925	127	114	116	126	148	141	144	105	146	127
1926	128	113	111	121	149	139	144	103	144	124
1927	127	111	104	115	137	133	139	101	143	119
1928	127	110	101	113	134	130	137	101	142	117
1929	126	109	100	112	132	129	136	101	142	116
1930	127	106	96	109	128	128	136	102	142	115
1931	126	101	87	97	116	117	121	100	140	106
1932	116	96	73	81	96	97	97	82	118	89
1933	105	82	62	64	80	79	82	69	96	73

[1] All farm land with improvements, as of Mar. 1. Owing to rounding of figures, 1912–14 will not always equal exactly 100 percent.

Bureau of Agricultural Economics; based on values as reported by crop reporters.
Values as reported by the census for 1910, 1920, and 1925 will be found in table 511 of the 1927 Yearbook.

TABLE 477.—*Number of farms per 1,000 changing ownership by various methods, by geographic divisions, 12 months ended Mar. 15, 1929–33*

Method of sale and year	New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific	United States
	Number per thousand	*Number per thousand*	*Number per thousand*	*Number per thousand*	*Number per thousand*	*Number per thousand*	*Number per thousand*	*Number per thousand*	*Number per thousand*	*Number per thousand*
Voluntary sales and trades: [1]										
1929	30.4	28.2	21.0	22.4	18.3	23.4	25.5	35.6	28.3	23.5
1930	30.7	28.3	20.8	22.9	18.2	23.9	24.2	38.7	30.1	23.7
1931	30.7	24.5	18.6	18.9	14.5	19.4	16.7	24.8	22.1	19.0
1932	24.8	20.4	16.8	14.2	12.3	17.2	15.4	17.6	22.3	16.2
1933	22.5	21.0	15.6	13.8	15.3	18.9	17.6	16.8	21.3	16.8
Forced sales and related defaults:										
1929	10.9	12.0	19.1	25.9	23.0	15.2	15.2	29.1	17.5	19.5
1930	11.2	13.1	22.3	27.5	23.2	16.1	16.8	29.4	15.2	20.8
1931	9.7	13.8	24.0	31.3	32.2	25.9	22.4	36.4	25.0	26.1
1932	15.5	18.0	34.3	52.5	47.1	50.6	40.2	43.5	37.6	41.7
1933	19.8	28.3	43.9	72.0	59.5	63.5	51.2	52.8	44.1	54.1
Inheritance and gift:										
1929	9.6	8.0	8.9	8.5	10.4	8.8	7.2	6.0	6.5	8.5
1930	10.3	8.2	9.4	9.8	11.4	9.3	7.6	7.0	7.3	9.3
1931	8.8	8.5	9.3	9.7	12.5	9.9	7.4	6.9	6.6	9.4
1932	10.2	9.0	11.0	9.8	13.3	11.1	8.8	7.8	7.5	10.4
1933	11.9	11.2	13.3	12.9	16.7	13.7	11.8	9.5	11.2	13.1
Administrators' and executors' sales: [2]										
1929	6.5	7.2	6.7	6.1	7.5	5.4	3.6	4.1	3.7	5.4
1930	6.1	7.0	7.8	6.2	7.9	5.8	3.3	4.7	3.6	6.1
1931	5.6	7.0	7.5	5.4	6.5	5.6	3.4	3.6	3.6	5.7
1932	6.9	6.1	8.1	4.9	8.1	6.2	4.9	4.5	4.3	6.2
1933	7.1	7.9	7.6	6.1	10.2	7.5	4.8	4.1	3.9	7.0
Total, all classes: [3]										
1929	58.2	56.6	57.0	64.1	60.3	53.7	52.5	76.2	57.5	58.0
1930	60.2	58.0	61.6	68.0	62.7	56.5	53.3	81.7	57.6	61.5
1931	56.1	55.5	60.9	66.8	68.3	62.6	51.6	72.8	58.1	61.9
1932	60.5	55.3	72.4	83.8	83.4	87.2	71.3	75.5	73.7	76.7
1933	63.5	69.9	82.7	107.1	104.9	106.6	88.3	85.4	82.7	93.6

[1] Including contracts to purchase (but not options).
[2] Includes all other sales in settlement of estates.
[3] Including miscellaneous and unclassified.

Bureau of Agricultural Economics; based on returns from crop reporters.

TABLE 478.—*Bankruptcies among farmers, number and percentage of total, by geographic divisions, fiscal years ended June 30, 1910–33*

Year ended June 30	New England		Middle Atlantic		East North Central		West North Central		South Atlantic	
	Bankruptcies among farmers	Percent of total bankruptcies	Bankruptcies among farmers	Percent of total bankruptcies	Bankruptcies among farmers	Percent of total bankruptcies	Bankruptcies among farmers	Percent of total bankruptcies	Bankruptcies among farmers	Percent of total bankruptcies
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
1910	123	6.0	52	1.8	98	3.2	287	15.9	63	4.5
1911	85	4.4	48	1.6	89	3.4	167	11.0	78	5.1
1912	148	7.4	58	1.7	78	2.7	219	14.2	79	4.7
1913	81	4.0	66	1.8	143	5.0	258	13.7	85	4.5
1914	88	4.0	63	2.0	91	2.8	289	14.6	100	4.5
1915	112	4.8	90	2.4	94	2.8	290	13.8	177	5.5
1916	143	5.3	88	2.0	146	3.9	276	12.6	369	9.8
1917	152	4.8	130	2.7	142	3.6	325	13.6	407	12.2
1918	125	4.3	97	2.4	126	3.6	267	11.4	410	13.8
1919	104	4.1	89	2.4	75	2.2	156	8.1	291	15.8
1920	72	3.8	67	2.2	83	3.3	213	12.0	169	10.1
1921	91	6.2	91	3.3	62	3.6	324	20.6	297	13.7
1922	92	4.9	77	2.6	247	9.0	1,066	40.3	678	17.0
1923	146	4.9	148	3.1	569	11.5	2,005	46.1	959	17.0
1924	196	5.8	171	3.2	684	12.2	2,785	42.5	1,085	16.9
1925	169	5.2	190	2.6	760	13.4	2,889	39.2	1,037	17.6
1926	145	4.6	224	3.4	844	11.3	2,813	35.4	747	12.7
1927	105	3.1	224	3.1	719	9.2	2,404	30.3	585	10.0
1928	162	3.5	274	3.5	874	9.3	1,729	24.2	685	9.9
1929	145	3.2	270	3.2	980	8.8	1,471	21.2	515	7.0
1930	141	2.8	305	3.6	973	8.0	1,257	19.2	491	5.9
1931	104	2.3	353	3.6	1,025	8.1	1,010	17.9	455	5.8
1932	186	3.8	372	3.8	1,580	10.7	1,099	20.5	467	5.7
1933	164	3.4	514	3.7	2,020	13.3	1,277	23.8	601	7.4

Year ended June 30	East South Central		West South Central		Mountain		Pacific		United States	
	Bankruptcies among farmers	Percent of total bankruptcies	Bankruptcies among farmers	Percent of total bankruptcies	Bankruptcies among farmers	Percent of total bankruptcies	Bankruptcies among farmers	Percent of total bankruptcies	Bankruptcies among farmers	Percent of total bankruptcies
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
1910	38	2.8	66	8.3	35	7.1	87	9.0	849	5.7
1911	65	5.3	72	8.2	35	7.0	40	4.2	679	4.8
1912	91	5.7	62	7.0	55	9.1	47	4.6	837	5.4
1913	83	4.1	89	7.4	66	8.9	71	5.4	942	5.4
1914	100	4.2	81	6.8	118	15.7	115	6.9	1,045	5.6
1915	127	4.4	97	9.3	159	19.2	100	5.9	1,246	5.9
1916	164	6.8	178	9.4	179	17.0	115	6.1	1,658	6.9
1917	184	6.8	217	12.2	193	17.4	156	7.3	1,906	7.5
1918	179	5.3	186	15.1	105	11.4	137	6.7	1,632	7.0
1919	126	5.6	164	14.9	102	11.9	100	5.8	1,207	6.3
1920	108	6.8	95	10.0	104	16.2	86	5.9	997	6.4
1921	100	3.9	124	15.7	177	23.8	97	7.2	1,363	9.0
1922	201	4.9	264	19.5	419	38.2	192	11.0	3,236	14.4
1923	420	9.1	539	20.4	730	43.3	424	16.3	5,940	17.4
1924	483	9.7	788	22.3	1,040	46.3	540	15.7	7,772	18.7
1925	517	9.7	650	23.6	1,071	41.8	589	14.6	7,872	17.8
1926	579	9.5	764	25.6	1,142	42.7	511	11.9	7,769	16.5
1927	615	9.7	567	20.7	609	31.8	468	10.0	6,296	13.1
1928	521	6.9	561	19.5	420	24.0	453	8.5	5,679	10.6
1929	352	4.5	484	17.3	335	20.9	387	6.1	4,939	8.7
1930	336	3.8	375	14.7	260	17.1	326	4.6	4,464	7.4
1931	338	3.6	282	10.5	201	13.3	255	4.4	4,023	6.7
1932	311	3.2	308	10.2	215	15.2	311	5.0	4,849	7.7
1933	494	6.0	371	9.7	167	13.1	309	5.1	5,917	8.9

Bureau of Agricultural Economics; compiled from annual reports of the Attorney General.

TABLE 479.—*Farm real-estate taxes per acre, by States and geographic divisions, 1913–32* [1]

State and geographic division	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
Maine	0.32	0.32	0.33	0.34	0.39	0.40	0.45	0.55	0.55	0.58	0.63	0.62	0.62	0.69	0.70	0.73	0.76	0.81	0.82	0.78
New Hampshire	.33	.35	.35	.36	.39	.41	.51	.57	.60	.59	.64	.64	.69	.72	.76	.81	.81	.76	.79	.70
Vermont	.22	.23	.25	.27	.29	.33	.37	.45	.45	.47	.48	.50	.51	.52	.54	.55	.56	.57	.56	.51
Massachusetts	.88	.95	.98	1.02	1.02	1.10	1.23	1.55	1.66	1.78	1.81	1.87	2.00	2.14	2.20	2.16	2.16	2.12	2.15	2.16
Rhode Island	.48	.49	.54	.55	.59	.64	.70	.81	.88	.92	.97	.99	1.03	1.16	1.23	1.26	1.32	1.36	1.39	1.39
Connecticut	.53	.57	.61	.64	.71	.76	.95	1.08	1.12	1.20	1.23	1.28	1.36	1.42	1.47	1.46	1.59	1.61	1.64	1.58
New England	.41	.43	.44	.46	.51	.53	.62	.74	.77	.81	.85	.86	.90	.96	.98	.99	1.01	1.02	1.03	.98
New York	.45	.48	.53	.54	.63	.64	.72	.87	.88	.90	.98	1.02	1.04	1.06	1.07	1.07	1.01	1.04	1.04	.98
New Jersey	.76	.77	.81	.86	.97	1.04	1.14	1.51	1.81	1.94	1.99	2.10	2.19	2.35	2.44	2.59	2.69	2.80	2.63	2.30
Pennsylvania	.50	.50	.51	.55	.57	.63	.68	.82	.90	.97	1.01	1.05	1.11	1.16	1.18	1.24	1.28	1.30	1.27	1.22
Middle Atlantic	.49	.50	.54	.56	.62	.66	.73	.89	.94	.99	1.05	1.09	1.13	1.17	1.19	1.22	1.21	1.24	1.22	1.15
Ohio	.53	.51	.60	.67	.69	.73	.84	1.07	1.15	1.23	1.23	1.28	1.31	1.35	1.44	1.42	1.41	1.36	1.15	1.02
Indiana	.59	.59	.66	.73	.76	.79	.90	1.26	1.41	1.41	1.45	1.45	1.40	1.38	1.36	1.38	1.39	1.41	1.32	.91
Illinois	.49	.46	.52	.61	.68	.65	.81	.99	1.05	1.06	1.02	1.08	1.15	1.13	1.12	1.11	1.14	1.16	1.03	.92
Michigan	.54	.55	.63	.65	.74	.80	1.07	1.23	1.32	1.31	1.29	1.24	1.26	1.27	1.35	1.35	1.38	1.34	1.18	.85
Wisconsin	.47	.45	.49	.53	.58	.62	.89	1.04	1.08	1.05	1.07	1.03	.96	.98	1.07	1.09	1.13	1.07	.89	.76
East North Central	.52	.51	.57	.64	.69	.71	.89	1.10	1.18	1.19	1.19	1.20	1.21	1.21	1.25	1.25	1.27	1.25	1.10	.90
Minnesota	.30	.34	.35	.39	.46	.48	.64	.76	.79	.77	.84	.75	.78	.80	.81	.85	.86	.87	.84	.67
Iowa	.56	.56	.60	.64	.74	.76	.94	1.10	1.20	1.26	1.25	1.23	1.15	1.14	1.14	1.15	1.22	1.24	1.13	1.02
Missouri	.14	.15	.16	.16	.18	.19	.25	.28	.38	.40	.40	.41	.43	.44	.45	.47	.47	.45	.41	.37
North Dakota	.15	.17	.20	.21	.21	.25	.43	.44	.45	.43	.38	.38	.37	.37	.39	.39	.38	.38	.33	.29
South Dakota	.15	.15	.17	.18	.22	.26	.35	.45	.41	.41	.43	.43	.44	.44	.44	.45	.46	.44	.35	.32
Nebraska	.19	.19	.19	.20	.22	.23	.28	.42	.47	.41	.40	.39	.42	.42	.46	.46	.45	.44	.42	.36
Kansas	.21	.22	.23	.24	.27	.28	.35	.42	.50	.45	.48	.48	.52	.54	.56	.57	.58	.55	.53	.41
West North Central	.24	.25	.27	.28	.32	.34	.45	.54	.59	.57	.58	.57	.58	.58	.59	.60	.61	.61	.56	.47
Delaware	.27	.29	.32	.34	.43	.47	.61	.68	.59	.62	.63	.69	.73	.79	.64	.64	.54	.52	.52	.49
Maryland	.38	.41	.42	.47	.48	.58	.60	.72	.71	.76	.81	.85	.88	.89	.90	.92	.92	.93	.90	.85
Virginia	.12	.13	.13	.16	.17	.18	.20	.23	.29	.30	.31	.33	.34	.34	.33	.34	.34	.34	.31	.26
West Virginia	.13	.14	.17	.18	.20	.20	.28	.31	.33	.38	.43	.42	.43	.44	.45	.45	.49	.45	.44	.37
North Carolina	.10	.10	.12	.12	.14	.15	.20	.34	.41	.40	.48	.50	.55	.58	.63	.64	.60	.59	.51	.48
South Carolina	.14	.15	.15	.15	.17	.24	.28	.35	.36	.33	.32	.38	.39	.39	.40	.41	.43	.40	.40	.37
Georgia	.13	.15	.15	.16	.17	.20	.23	.28	.28	.28	.27	.28	.29	.30	.29	.30	.30	.30	.28	.26
Florida	.14	.20	.23	.24	.28	.31	.39	.46	.47	.56	.67	.72	.95	.93	.94	.92	.92	.70	.61	.57
South Atlantic	.14	.15	.16	.17	.19	.22	.26	.33	.36	.37	.40	.42	.46	.47	.47	.48	.48	.45	.42	.38

Kentucky	.16	.16	.17	.18	.18	.19	.28	.38	.41	.41	.44	.40	.40	.41	.43	.43	.42	.42	.42	.38
Tennessee	.15	.16	.17	.18	.21	.23	.26	.40	.45	.44	.46	.48	.43	.46	.46	.46	.47	.47	.43	.40
Alabama	.10	.10	.11	.12	.13	.14	.15	.19	.19	.20	.20	.20	.21	.23	.23	.23	.25	.25	.25	.23
Mississippi	.16	.17	.16	.18	.25	.31	.37	.50	.47	.51	.55	.59	.59	.57	.59	.67	.68	.64	.60	.52
East South Central	.14	.15	.15	.17	.19	.22	.26	.36	.38	.39	.41	.42	.41	.42	.43	.44	.45	.45	.42	.38
Arkansas	.16	.16	.17	.18	.23	.24	.30	.33	.34	.36	.35	.35	.34	.28	.29	.31	.32	.32	.33	.30
Louisiana	.18	.19	.19	.21	.26	.34	.42	.55	.54	.47	.49	.53	.57	.54	.51	.53	.58	.57	.53	.49
Oklahoma	.20	.17	.23	.21	.24	.25	.37	.38	.40	.41	.44	.44	.42	.39	.44	.43	.46	.47	.41	.34
Texas	.08	.08	.09	.09	.11	.12	.15	.16	.16	.17	.18	.19	.20	.20	.20	.22	.22	.23	.21	.17
West South Central	.11	.11	.13	.13	.15	.17	.22	.24	.25	.25	.26	.27	.27	.26	.27	.28	.29	.30	.27	.23
Montana	.08	.08	.08	.09	.10	.10	.13	.14	.15	.14	.14	.13	.13	.14	.13	.13	.14	.14	.13	.12
Idaho	.30	.27	.30	.30	.36	.38	.54	.63	.64	.62	.62	.57	.58	.58	.63	.62	.65	.65	.55	.55
Wyoming	.04	.04	.05	.05	.05	.05	.08	.09	.08	.08	.07	.07	.07	.07	.08	.09	.09	.09	.10	.08
Colorado	.12	.13	.13	.13	.16	.17	.22	.27	.29	.29	.28	.27	.28	.29	.30	.29	.29	.28	.23	.22
New Mexico	.04	.04	.03	.03	.03	.04	.05	.05	.06	.05	.05	.05	.06	.06	.06	.07	.07	.07	.08	.07
Arizona	.08	.08	.09	.08	.10	.10	.13	.18	.18	.15	.17	.16	.19	.19	.20	.19	.22	.21	.21	.19
Utah	.18	.20	.20	.22	.25	.25	.34	.47	.48	.44	.47	.44	.46	.50	.52	.54	.52	.54	.54	.51
Nevada	.08	.11	.11	.11	.13	.14	.17	.21	.22	.23	.22	.21	.22	.22	.21	.20	.17	.15	.15	.15
Mountain	.10	.10	.10	.10	.12	.12	.17	.20	.20	.19	.19	.18	.18	.19	.19	.19	.20	.19	.18	.17
Washington	.34	.32	.32	.33	.38	.42	.53	.67	.68	.68	.65	.61	.61	.61	.63	.67	.68	.68	.64	.52
Oregon	.17	.16	.17	.19	.20	.22	.28	.37	.38	.37	.36	.36	.37	.40	.40	.41	.44	.40	.33	.33
California	.39	.44	.47	.49	.55	.55	.69	.93	.94	1.02	1.04	1.03	1.07	1.13	1.14	1.18	1.14	1.13	1.06	.94
Pacific	.33	.35	.36	.39	.43	.44	.55	.73	.74	.78	.78	.76	.78	.82	.83	.86	.85	.83	.77	.68
United States	.24	.24	.26	.28	.31	.33	.41	.51	.54	.54	.55	.55	.56	.56	.57	.58	.58	.57	.53	.46

[1] These data represent new estimates for individual States for the years prior to 1924 and a revision of previous estimates since that year. A more adequate sample, improved methods of calculation, and modified variable weights underlie the revision.

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TABLE 480.—*Farm real-estate taxes per $100 of value, by States and geographic divisions, 1913–32*

State and geographic division	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932
	Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
Maine	1.26	1.28	1.29	1.18	1.29	1.21	1.20	1.54	1.55	1.55	1.67	1.62	1.57	1.74	1.73	1.80	1.81	1.95	2.19	2.45
New Hampshire	1.16	1.25	1.29	1.27	1.29	1.31	1.48	1.64	1.60	1.71	1.80	1.67	1.76	1.84	1.93	2.06	2.06	1.94	2.19	2.14
Vermont	.91	.90	.88	.86	.88	.98	.98	1.17	1.19	1.32	1.36	1.43	1.42	1.44	1.49	1.49	1.49	1.55	1.64	1.66
Massachusetts	1.21	1.36	1.37	1.30	1.26	1.30	1.24	1.59	1.66	1.75	1.75	1.74	1.76	1.85	1.82	1.72	1.66	1.64	1.80	1.93
Rhode Island	.77	.76	.82	.79	.81	.85	.88	.99	1.07	1.11	1.12	1.10	1.06	1.09	1.09	1.07	1.07	1.11	1.19	1.28
Connecticut	.74	.81	.85	.82	.85	.86	.95	1.08	1.05	1.13	1.12	1.16	1.15	1.12	1.08	1.02	1.05	1.06	1.14	1.17
New England	1.07	1.13	1.12	1.05	1.13	1.12	1.15	1.38	1.40	1.48	1.52	1.51	1.51	1.58	1.56	1.55	1.53	1.56	1.70	1.78
New York	.82	.89	.96	.93	1.04	1.04	1.04	1.33	1.36	1.34	1.44	1.44	1.46	1.48	1.49	1.47	1.38	1.52	1.60	1.69
New Jersey	.84	.88	.91	.90	.99	1.03	1.04	1.30	1.60	1.72	1.59	1.54	1.47	1.52	1.53	1.56	1.58	1.68	1.64	1.54
Pennsylvania	.87	.89	.88	.87	.88	.94	.90	1.14	1.33	1.40	1.44	1.46	1.49	1.54	1.54	1.59	1.63	1.74	1.80	2.11
Middle Atlantic	.84	.88	.92	.90	.96	1.00	.99	1.25	1.37	1.41	1.46	1.46	1.48	1.51	1.52	1.53	1.51	1.63	1.69	1.84
Ohio	.72	.66	.74	.78	.73	.76	.74	1.11	1.26	1.34	1.34	1.46	1.53	1.65	1.79	1.76	1.79	1.89	1.87	1.98
Indiana	.72	.73	.75	.80	.75	.74	.71	1.08	1.49	1.52	1.63	1.70	1.73	1.85	1.87	1.89	1.94	2.18	2.46	1.92
Illinois	.40	.38	.42	.46	.48	.42	.43	.55	.71	.73	.74	.79	.88	.96	.98	.98	1.04	1.21	1.31	1.44
Michigan	1.04	1.05	1.14	1.09	1.12	1.19	1.42	1.62	1.76	1.75	1.78	1.74	1.81	1.84	1.96	1.96	2.04	2.08	2.18	1.89
Wisconsin	.76	.72	.71	.73	.74	.75	.90	1.04	1.16	1.14	1.19	1.18	1.14	1.20	1.32	1.36	1.43	1.52	1.44	1.39
East North Central	.63	.61	.65	.69	.69	.67	.70	.91	1.12	1.14	1.19	1.23	1.29	1.37	1.44	1.45	1.51	1.65	1.73	1.67
Minnesota	.54	.61	.55	.55	.58	.56	.59	.70	.83	.86	.98	.94	1.00	1.09	1.14	1.20	1.25	1.45	1.65	1.64
Iowa	.50	.46	.44	.45	.48	.44	.41	.52	.69	.75	.80	.83	.81	.86	.88	.90	.98	1.14	1.28	1.59
Missouri	.25	.27	.28	.26	.27	.26	.28	.34	.54	.58	.63	.67	.75	.80	.83	.86	.89	.98	1.06	1.17
North Dakota	.48	.55	.61	.61	.59	.67	1.05	1.11	1.18	1.22	1.22	1.28	1.30	1.39	1.49	1.53	1.54	1.72	1.75	1.71
South Dakota	.35	.36	.38	.38	.43	.45	.49	.66	.71	.82	.93	.96	1.05	1.17	1.19	1.24	1.30	1.40	1.38	1.54
Nebraska	.38	.38	.37	.37	.35	.32	.32	.52	.67	.60	.64	.65	.70	.72	.80	.80	.81	.84	.95	1.05
Kansas	.51	.51	.51	.50	.53	.51	.56	.68	.92	.83	.94	.96	1.06	1.10	1.15	1.17	1.20	1.24	1.38	1.35
West North Central	.43	.44	.44	.44	.46	.44	.47	.60	.76	.76	.84	.86	.90	.96	1.00	1.02	1.08	1.20	1.31	1.36
Delaware	.52	.56	.60	.59	.69	.73	.89	1.04	.95	.96	1.04	1.04	1.05	1.14	.90	.88	.72	.72	.82	.92
Maryland	.72	.78	.77	.80	.75	.86	.74	.99	.97	1.03	1.08	1.10	1.12	1.15	1.15	1.16	1.13	1.17	1.28	1.43
Virginia	.40	.45	.38	.44	.41	.37	.36	.43	.61	.56	.59	.64	.68	.70	.67	.67	.67	.76	.82	.77
West Virginia	.44	.49	.58	.57	.58	.53	.65	.77	.90	.97	1.08	1.06	1.10	1.16	1.17	1.16	1.26	1.24	1.46	1.36
North Carolina	.41	.42	.44	.39	.38	.35	.37	.71	1.00	.81	.96	1.00	1.09	1.18	1.29	1.34	1.28	1.48	1.52	1.89
South Carolina	.52	.59	.56	.50	.50	.52	.43	.66	1.01	.88	.78	.88	.96	1.07	1.09	1.09	1.18	1.26	1.56	1.85
Georgia	.66	.82	.72	.68	.64	.57	.51	.79	.99	1.05	.99	1.05	1.09	1.20	1.14	1.16	1.16	1.27	1.52	1.74
Florida	.51	.79	.85	.84	.85	.83	.84	.86	.91	.95	.96	.88	.88	1.06	1.10	1.08	1.10	.86	.88	.96
South Atlantic	.52	.58	.56	.54	.53	.51	.49	.70	.89	.84	.88	.91	.97	1.06	1.06	1.08	1.07	1.12	1.25	1.36

Kentucky	.51	.52	.50	.47	.41	.37	.46	.73	.90	.92	1.03	.94	.92	.96	1.02	1.00	.96	1.06	1.26	1.39
Tennessee	.54	.60	.58	.56	.55	.52	.50	.89	1.07	.97	1.05	1.13	1.02	1.11	1.12	1.12	1.13	1.23	1.34	1.52
Alabama	.64	.66	.73	.75	.65	.63	.54	.82	.90	.88	.87	.81	.81	.91	.87	.84	.86	.96	1.23	1.31
Mississippi	.80	.89	.72	.75	.96	1.01	.85	1.69	1.58	1.75	1.99	2.06	1.99	1.96	1.97	2.15	2.06	2.12	2.43	2.66
East South Central	.58	.65	.59	.61	.58	.58	.56	.95	1.08	1.08	1.18	1.20	1.15	1.20	1.22	1.22	1.22	1.34	1.51	1.66
Arkansas	.84	.89	.82	.72	.80	.73	.70	.91	.98	1.03	1.04	1.01	1.01	.83	.86	.90	.93	1.12	1.32	1.56
Louisiana	.74	.81	.74	.77	.75	.90	.89	1.41	1.59	1.31	1.41	1.44	1.44	1.38	1.27	1.25	1.29	1.39	1.52	1.62
Oklahoma	.75	.68	.84	.71	.71	.69	.87	.92	1.12	1.20	1.36	1.30	1.22	1.12	1.24	1.20	1.25	1.39	1.50	1.54
Texas	.40	.41	.46	.42	.44	.46	.46	.55	.64	.70	.69	.68	.70	.72	.72	.78	.77	.90	1.04	.98
West South Central	.52	.54	.61	.55	.55	.58	.61	.74	.88	.90	.92	.90	.88	.86	.88	.90	.93	1.07	1.19	1.21
Montana	.41	.42	.45	.49	.52	.49	.59	.75	.88	.89	.94	.94	.99	1.12	1.06	1.07	1.18	1.21	1.36	1.54
Idaho	.68	.64	.70	.62	.67	.64	.78	.98	1.19	1.20	1.26	1.24	1.30	1.31	1.43	1.40	1.46	1.48	1.50	1.87
Wyoming	.34	.33	.46	.45	.36	.30	.40	.55	.55	.64	.63	.76	.80	.81	.92	.94	.98	1.05	1.44	1.44
Colorado	.42	.49	.46	.46	.56	.56	.62	.81	.92	1.00	1.10	1.10	1.19	1.34	1.39	1.34	1.34	1.32	1.35	1.56
New Mexico	.48	.49	.40	.37	.37	.48	.55	.64	.85	.75	.77	.80	.96	.94	.93	1.06	1.04	1.05	1.47	1.52
Arizona	.25	.28	.34	.31	.37	.36	.44	.71	.83	.83	1.06	1.23	1.32	1.27	1.28	1.14	1.27	1.20	1.42	1.49
Utah	.56	.64	.61	.62	.68	.59	.70	1.19	1.24	1.13	1.22	1.14	1.19	1.29	1.34	1.38	1.33	1.41	1.76	1.96
Nevada	.42	.57	.58	.58	.63	.58	.60	.84	.96	1.12	1.17	1.26	1.37	1.38	1.32	1.27	1.09	.98	1.21	1.45
Mountain	.47	.49	.50	.48	.54	.50	.63	.84	.94	.97	1.06	1.09	1.12	1.22	1.22	1.22	1.26	1.24	1.44	1.65
Washington	.64	.63	.62	.58	.64	.69	.76	1.01	1.10	1.15	1.11	1.06	1.06	1.07	1.10	1.18	1.20	1.21	1.35	1.36
Oregon	.40	.40	.42	.46	.46	.48	.56	.73	.80	.82	.81	.83	.89	.99	1.01	1.07	1.15	1.06	1.05	1.29
California	.56	.62	.64	.59	.64	.62	.66	.86	.86	.92	.93	.90	.94	1.00	1.01	1.05	1.02	1.02	1.13	1.23
Pacific	.56	.59	.59	.59	.62	.61	.66	.87	.90	.95	.95	.92	.95	1.01	1.04	1.08	1.06	1.06	1.16	1.26
United States	.55	.56	.57	.57	.58	.57	.59	.79	.94	.96	1.01	1.03	1.07	1.12	1.15	1.18	1.19	1.28	1.42	1.50

Bureau of Agricultural Economics. These data are derived from the figures shown in the preceding table and the indexes of farm real-estate values, which are estimated annually by the Bureau.

TABLE 481.—*Farm mortgage debt: Estimated total for all farms, by States, Jan. 1, selected years from 1910 to 1930*

State and division	1910 [1]	1920	1925	1928	1930 [2]
	1,000 dollars	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Maine	13, 210	20, 890	26, 097	25, 252	24, 823
New Hampshire	5, 870	8, 600	7, 732	7, 780	9, 901
Vermont	15, 850	29, 040	28, 001	28, 322	33, 102
Massachusetts	22, 890	34, 180	32, 207	31, 262	42, 550
Rhode Island	2, 210	2, 350	2, 435	2, 455	3, 854
Connecticut	16, 080	25, 800	27, 276	27, 423	30, 514
New England	76, 110	120, 860	123, 748	122, 494	144, 744
New York	154, 190	224, 060	226, 776	219, 812	247, 633
New Jersey	31, 720	39, 500	41, 741	40, 370	56, 884
Pennsylvania	95, 620	133, 080	120, 281	116, 432	174, 037
Middle Atlantic	281, 530	396, 640	388, 798	376, 614	478, 554
Ohio	113, 320	210, 760	214, 409	222, 101	259, 630
Indiana	111, 280	206, 600	264, 483	277, 269	266, 989
Illinois	266, 780	502, 860	650, 353	685, 365	631, 266
Michigan	109, 970	215, 740	228, 089	235, 399	230, 377
Wisconsin	193, 600	455, 470	504, 553	529, 992	502, 549
East North Central	794, 950	1, 591, 420	1, 861, 887	1, 950, 126	1, 890, 811
Minnesota	146, 160	455, 540	553, 784	558, 458	530, 025
Iowa	431, 500	1, 098, 970	1, 424, 352	1, 402, 178	1, 098, 610
Missouri	202, 650	385, 790	449, 022	447, 351	428, 227
North Dakota	101, 450	267, 780	226, 714	230, 250	204, 598
South Dakota	88, 700	278, 880	372, 004	370, 946	295, 725
Nebraska	161, 850	416, 860	617, 930	599, 418	560, 973
Kansas	163, 770	295, 870	482, 596	447, 586	487, 122
West North Central	1, 296, 080	3, 199, 690	4, 126, 402	4, 056, 187	3, 605, 280
Delaware	6, 500	8, 990	8, 695	9, 469	11, 841
Maryland	29, 580	49, 230	50, 422	54, 980	64, 825
District of Columbia	290	340	304	354	642
Virginia	24, 000	61, 600	79, 709	87, 117	88, 865
West Virginia	8, 210	15, 960	18, 570	20, 155	24, 283
North Carolina	18, 960	56, 580	78, 606	90, 866	104, 979
South Carolina	20, 530	51, 220	68, 735	77, 214	67, 507
Georgia	28, 800	83, 840	109, 060	123, 305	100, 845
Florida	4, 380	19, 710	25, 508	28, 436	45, 140
South Atlantic	141, 250	347, 470	439, 609	491, 896	503, 927
Kentucky	40, 510	104, 100	94, 549	103, 798	97, 668
Tennessee	26, 850	83, 130	85, 857	96, 711	87, 313
Alabama	24, 880	55, 450	66, 410	69, 488	83, 764
Mississippi	31, 320	77, 420	109, 562	111, 500	96, 864
East South Central	123, 560	320, 100	356, 378	381, 497	365, 609
Arkansas	22, 200	76, 870	97, 809	103, 464	85, 577
Louisiana	19, 090	41, 250	57, 910	61, 760	61, 379
Oklahoma	77, 680	188, 890	218, 963	228, 513	214, 033
Texas	172, 240	396, 670	485, 587	507, 515	543, 951
West South Central	291, 210	703, 680	860, 269	901, 252	904, 940
Montana	19, 620	154, 940	116, 616	104, 862	129, 200
Idaho	24, 270	115, 350	107, 355	100, 033	106, 908
Wyoming	7, 820	32, 970	43, 364	40, 922	42, 948
Colorado	41, 800	138, 400	153, 727	144, 464	146, 462
New Mexico	4, 810	23, 670	28, 784	26, 900	30, 729
Arizona	4, 880	31, 790	29, 545	29, 006	28, 743
Utah	7, 170	35, 550	39, 152	36, 367	46, 273
Nevada	3, 340	11, 880	15, 244	13, 997	14, 737
Mountain	113, 710	544, 550	533, 787	496, 551	546, 000
Washington	45, 040	116, 740	121, 371	120, 523	131, 299
Oregon	34, 950	91, 090	105, 503	110, 875	116, 805
California	22, 080	425, 460	442, 868	460, 511	548, 421
Pacific	202, 070	633, 290	669, 742	691, 909	796, 525
United States	3, 320, 470	7, 857, 700	9, 360, 620	9, 468, 526	9, 241, 390

[1] Revised. [2] Preliminary.

Bureau of Agricultural Economics. Similar estimates for 1932 and 1933 were not completed when this Yearbook went to press, but they may be obtained from the Bureau of Agricultural Economics on request.

TABLE 482.—*Agricultural loans from selected Federal and other agencies, outstanding at close of year, 1917–33*

End of year	Farm mortgage loans [1] by—				Federal intermediate credit bank loans to—	
	Federal land banks [2]	Joint-stock land banks [2]	Loans of 40 life insurance companies [3]	Member banks [4]	Cooperative associations [2]	Financing agencies [2]
	Million dollars	*Million dollars*	*Million dollars*	*Million dollars*	*Thousand dollars*	*Thousand dollars*
1917	[5] 30					
1918	156	8				
1919	294	60				
1920	350	78				
1921	433	85				
1922	639	219				
1923	800	393	1,335		33,627	9,105
1924	928	446	1,452		43,507	18,760
1925	1,006	546	1,523		53,780	26,272
1926	1,078	632	1,588	[6] 489	52,704	39,730
1927	1,156	667	1,618	[6] 478	31,991	43,924
1928	1,194	605	1,606	[6] 444	36,174	45,103
1929	1,197	585	1,591	388	26,073	50,018
1930	1,187	553	1,554	387	64,377	65,633
1931	1,163	530	1,512	359	45,255	74,613
1932	1,116	409	1,402	356	9,866	82,518
1933	1,213	354	[7] 1,266	[6] 308	15,210	134,252

[1] See table 481 for total mortgage debt, by States.
[2] Farm Credit Administration. Beginning 1928 loans from joint-stock land banks in receivership not included.
[3] Association of Life Insurance Presidents. Reports cover operations of 40 companies representing 82 percent of the admitted assets of all legal reserve life companies in the United States.
[4] Federal Reserve Board. [5] Nov. 30. [6] June 30. [7] Oct. 30.

Bureau of Agricultural Economics.

TABLE 483.—*Selected interest and discount rates, and bond yields, 1917–33*

Year	12 Federal land banks' rates to borrowers [1]	12 Federal intermediate credit banks' loan and discount rates [1]		Yield on Federal land bank bonds	Rates on commercial paper (4–6 months) (average) [2]	Federal Reserve bank discount rates (New York) [2]
		Loans	Discounts			
	Average	*Average*	*Average*	*Average*	*Average*	*Range*
1917	5.05			4.33	4.74	4 –4½
1918	5.45			4.39	5.86	4½–4¾
1919	5.50			4.22	5.42	4¾
1920	5.50			5.14	7.46	4¾–7
1921	5.88			5.11	6.56	4½–7
1922	5.71			4.50	4.48	4 –4½
1923	5.50	5.50	5.50	4.39	5.01	4 –4½
1924	5.50	5.12	5.33	4.55	3.87	3 –4½
1925	5.46	4.59	5.04	4.34	4.03	3 –3½
1926	5.30	4.70	4.90	4.27	4.34	3½–4
1927	5.11	4.51	4.73	4.08	4.10	3½–4
1928	5.05	4.81	4.91	4.26	4.85	3½–5
1929	5.32	5.56	5.61	4.78	5.84	4½–6
1930	5.63	4.53	4.54	4.70	3.58	2½–4½
1931	5.63	4.08	4.08	5.34	2.63	1½–3½
1932	5.61	4.23	4.23	5.59	2.73	2½–3½
1933	5.31	3.10	3.10	5.43	1.72	2 –3½

[1] Farm Credit Administration.
[2] Federal Reserve Board.

Bureau of Agricultural Economics.

Table 484.—*Studies of farm family living*

[Data from 1,988 families in 11 States for 1 year in the period 1923–33] [1]

State, county, and locality	Key [2]	Year of study	Families studied	Average size of family	Average value of family living	Average value of goods and services furnished by the farm: Food	Housing	Other	Total	Average expenditures for goods and services purchased: Food	Clothing	Household operation [3]	Transportation	Other	Total	Average savings: Life insurance	Other
			Number	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Vermont, scattered counties	3S	1928–29	161	[4] 3.9	[5] 1,095	[6] 253	[7] 111	[6] 125	489	276	80	19	[8] 79	130	584	22	([9])
Ohio:																	
9 counties	2R	1924–25	26	4.5	([9])	[6] 400	([9])	[6] 27	([9])	226	201	125	([9])	348	900	([10])	[10] [11] 98
17 counties	2R	1927	70	4.7	([9])	[12] 289	([9])	[12] 14	([9])	226	181	125	95	386	1,013	95	([9])
Scattered counties	2R	1931	46	4.4	([9])	[6] 187	([9])	[6] 29	([9])	180	101	119	56	259	715	([10])	[10] 110
Do	2R	1932	79	4.3	([9])	[6] 155	([9])	[6] 24	([9])	133	81	84	([9])	227	525	([10])	[10] 109
Illinois:																	
Scattered counties	2R	1930–31	[13] 56	([9])	2,457	[14] 340	[7] 314	[14] 9	663	233	183	205	[8] 197	545	1,363	([10])	[10] 431
Do	2R	1931–32	[13] 56	([9])	1,998	[14] 359	[7] 290	[14] 17	666	205	135	148	[8] 131	396	1,015	([10])	[10] 317
Do	2R	1932–33	[13] 56	([9])	1,465	[14] 322	[7] 266	[14] 14	602	146	99	114	[8] 84	229	672	([10])	[10] 191
Do	2R	1932–33	159	[15] 3.6	1,308	[14] 307	[7] 236	[14] 17	560	141	91	102	[8] 74	201	609	110	29
Minnesota:																	
8 southeastern counties	2R	1932	84	[15] 4.2	1,032	[16] 166	[17] 139	[16] 34	339	201	88	72	[8] 78	166	605	([10])	[10] 88
8 northern counties	2R	1932	35	[15] 3.9	747	[16] 181	[17] 108	[16] 38	327	166	61	20	[8] 39	96	382	([10])	[10] 38
North Dakota:																	
Scattered counties	3R	1923	26	[4] 5.4	[5] 1,471	[6] 382	[7] 193	[16] 14	589	283	171	[18] 214	([18])	171	839	[11] 43	([9])
Do	3R	1924	29	[4] 5.1	[5] 1,535	[6] 375	[7] 200	[16] 12	587	274	179	[18] 225	([18])	219	897	[11] 51	([9])
Do	3R	1925	29	[4] 5.0	[5] 1,641	[6] 327	[7] 203	[16] 9	539	280	192	[18] 236	([18])	320	1,028	[11] 74	([9])
Do	3R	1926	33	[4] 5.1	[5] 1,727	[6] 326	[7] 247	[16] 7	580	287	197	[18] 260	([18])	311	1,055	[11] 92	([9])
Do	3R	1927	40	[4] 5.3	[5] 1,711	[6] 343	[7] 227	[16] 12	582	270	191	[18] 236	([18])	312	1,009	[11] 120	([9])
Do	3R	1928	26	[4] 5.6	[5] 1,721	[6] 313	[7] 240	[16] 10	563	259	204	[18] 248	([18])	348	1,059	[11] 99	([9])
Do	3R	1929	26	[4] 5.4	[5] 1,660	[6] 348	[7] 231	[16] 11	590	255	196	[18] 231	([18])	330	1,012	[11] 58	([9])
Do	3R	1930	42	[4] 4.9	[5] 1,507	[6] 291	[7] 216	[16] 2	509	272	143	[18] 226	([18])	274	915	[11] 83	([9])
Do	3R	1931	45	[4] 5.3	[5] 1,305	[6] 230	[7] 225	[16] 8	463	217	121	[18] 195	([18])	237	770	[11] 72	([9])
Maryland, scattered counties	2S	1930	42	([9])	([9])	([9])	([9])	([9])	([9])	371	269	103	([9])	595	1,338	([9])	([9])
Virginia, Grayson	1S	1930–31	331	4.7	[19] 775	[6] 241	[7] 93	[6] 42	376	81	122	22	([20])	174	399	([19])	([19])
Oklahoma, scattered counties	2R	1932	25	4.5	([9])	([9])	([9])	([9])	([9])	123	74	47	([20])	138	382	([9])	([9])

Wyoming, Goshen	2S	1929	368	([9])	([9])	([9])	([9])	([9])	([9])	348	207	89	([20])	353	997	([9])	([9])
Utah, Tooele	2R	1930	52	([9])	[5] 1,908	[16] 250	[16] 176	[16] 40	466	271	320	95	[8] 116	521	1,323	119	([9])
Washington:																	
Scattered counties	2R	1931	38	4.4	([9])	[6] 200	([9])	([9])	([9])	192	120	84	[8] 92	309	797	([10])	[10] 133
Chelan	2R	1932	8	4.5	([9])	([9])	([9])	([9])	([9])	172	52	102	163	218	707	([10])	[10] 105

[1] This table is a supplement to table 475, pp. 737 to 739, Yearbook of Agriculture, 1933, and includes data from recent studies and other studies not available at the time of publication of the 1933 Yearbook.

[2] The numbers indicate the agency which obtained the data, and the letters indicate the method used in obtaining the data, as follows: 1, Bureau of Home Economics, U.S. Department of Agriculture, in cooperation with State Agricultural Experiment Station; 2, State university, agricultural college, or agricultural experiment station; 3, Bureau of Agricultural Economics, U.S. Department of Agriculture, in cooperation with State agricultural experiment station; S, schedule method of obtaining data; R, record or account-book method of obtaining data.

[3] Includes expenditures for fuel, light, household supplies, and hired help; in some cases includes also those for laundry done outside, telephone, postage, express and freight, insurance on furniture, dry-cleaning and pressing, moving charges, interest on family debts, ice, and water.

[4] Size of household.

[5] Includes life insurance but no other savings.

[6] Goods furnished by the farm evaluated at farm prices.

[7] Evaluated at 10 percent of estimated value of house.

[8] Automobile only.

[9] Not included in this report.

[10] Life insurance included with other savings.

[11] Includes health and accident insurance.

[12] Goods furnished by the farm evaluated at local prices.

[13] Records from identical families for consecutive years.

[14] Goods furnished by the farm evaluated at retail prices.

[15] Size of family in adult-equivalent units.

[16] Basis of valuation not given.

[17] Estimated on basis of interest on investment and depreciation.

[18] Automobile for family use included with household operation expenditures

[19] Figures on life insurance and other savings not yet available.

[20] Not given separately.

Bureau of Home Economics.

TABLE 485.—*Income from sources other than the farm business of two groups of farm families in the Southern Appalachians*

FAMILIES IN KNOTT COUNTY, KY., 1929–30[1]

Value of living group	Families	Average income from— Extraction of minerals	Lumbering and work in sawmills	Building trades	Retail and wholesale trade	Public service and professional work	Transportation	Keeping boarders	Household industries	Pensions, insurance, annuities, and gifts	Other sources	Total
	Number	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Under $600	22	67	34	7	6	4		11	1	28	24	182
$600–$899	95	96	26	11	22	3	21	6	6	25	29	245
$900–$1,199	69	122	48	14	61	28	44	20	8	24	70	439
$1,200 and over	42	301	26	15	291	80	89	15	3	25	84	929
All groups	228	139	33	13	82	25	38	12	6	25	51	424

FAMILIES IN GRAYSON COUNTY, VA., 1930–31[2]

Value of living group	Families	Extraction of minerals	Lumbering and work in sawmills	Building trades	Retail and wholesale trade	Public service and professional work	Transportation	Keeping boarders	Household industries	Pensions, insurance, annuities, and gifts	Other sources	Total
Under $600	157		15	7	14	8	14	1	2	37	20	118
$600–$899	77	11	11	10	12	12	66	9	1	61	28	221
$900–$1,199	47		6	14	27	51	23	2	4	29	30	186
$1,200 and over	49		34	37	102	158	40	24	2	134	97	628
All groups	330	3	16	13	29	37	31	6	2	56	34	227

[1] Data secured by Bureau of Home Economics in cooperation with the Kentucky Agricultural Experiment Station.
[2] Data secured by Bureau of Home Economics in cooperation with the Virginia Agricultural Experiment Station.

TABLE 486.—*Annual value of current living of two groups of farm families in the Southern Appalachians*

FAMILIES IN KNOTT COUNTY, KY., 1929–30[1]

Value of living group	Families	Average size of family	Average value of current living	Average value of goods and services furnished by the farm				Average expenditures for goods and services purchased				
				Food	Housing	Other	Total	Food	Clothing	Household operation	Other	Total
	Number	*Persons*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Under $600	22	4.4	521	225	20	43	288	112	67	14	40	233
$600–$899	95	5.6	768	359	22	56	437	145	113	21	52	331
$900–$1,199	69	6.9	1,019	459	30	63	552	183	177	26	81	467
$1,200 and over	42	7.1	1,566	609	75	77	761	214	300	43	248	805
All groups	228	6.1	967	422	34	61	517	166	163	26	95	450

FAMILIES IN GRAYSON COUNTY, VA., 1930–31[2]

Value of living group	Families	Average size of family	Average value of current living	Food	Housing	Other	Total	Food	Clothing	Household operation	Other	Total
Under $600	157	3.9	440	173	39	34	246	62	64	11	57	194
$600–$899	77	5.1	729	255	78	46	379	84	121	18	127	350
$900–$1,199	47	5.7	1,034	327	143	46	516	87	157	27	247	518
$1,200 and over	50	6.1	1,652	349	240	54	643	133	273	58	545	1,009
All groups	331	4.7	775	241	93	42	376	81	122	22	174	399

[1] Data secured by Bureau of Home Economics in cooperation with the Kentucky Agricultural Experiment Station.
[2] Data secured by Bureau of Home Economics in cooperation with the Virginia Agricultural Experiment Station.

TABLE 487.—*Diets at 3 levels of nutritive content and cost: Approximate yearly quantities of food for individuals of different age, sex, and activity, and average yearly quantities per capita*

LEVEL 1—ADEQUATE DIET AT MINIMUM COST

Item	Child under 4 years	Boy 4 to 6 years; girl 4 to 7 years	Boy 7 to 8 years; girl 8 to 10 years	Boy 9 to 10 years; girl 11 to 13 years	Boy 11 to 12 years; girl over 13 years; moderately active woman	Active boy 13 to 15 years; very active woman	Active boy over 15 years	Moderately active man	Very active man	Average per capita, based on 1930 census of population
Flour, cereals .... pounds	70	100	150	170	175	260	350	260	435	224
Or—										
Bread .... do	30	50	70	80	80	120	160	120	200	------
Flour, cereals .... do	50	70	105	115	120	180	240	180	300	------
Milk, or its equivalent [1] .... quarts	365	365	273-365	273-365	[2] 273-365	[2] 273-365	273-365	182	182	260
Potatoes, sweetpotatoes .... pounds	100	110	125	140	140	160	225	160	300	165
Dried beans, peas, nuts .... do	----	8	18	20	25	30	30	40	50	30
Tomatoes, citrus fruits .... do	50	50	50	50	50	50	50	50	50	50
Leafy, green, and yellow vegetables .... pounds	60	60	90	100	100	75	50	75	50	80
Dried fruits .... do	3	5	12	17	20	30	20	30	20	20
Other vegetables, fruits .... do	25	40	60	80	90	100	100	100	100	85
Fats [3] .... do	8	12	25	32	40	65	75	65	85	49
Sugar [4] .... do	5	12	25	35	40	50	55	60	65	35
Lean meat, poultry, fish .... do	----	10	30	45	55	70	75	75	100	60
Eggs .... dozen	20	20	20	17	17	15	12	12	12	15

LEVEL 2—ADEQUATE DIET AT MODERATE COST

Item	Child under 4 years	Boy 4 to 6 years; girl 4 to 7 years	Boy 7 to 8 years; girl 8 to 10 years	Boy 9 to 10 years; girl 11 to 13 years	Boy 11 to 12 years; girl over 13 years; moderately active woman	Active boy 13 to 15 years; very active woman	Active boy over 15 years	Moderately active man	Very active man	Average per capita, based on 1930 census of population
Flour, cereals .... pounds	60	80	110	120	120	170	230	220	290	160
Or—										
Bread .... do	50	75	100	120	120	190	240	240	350	------
Flour, cereals .... do	30	30	40	40	40	40	70	60	60	------
Milk, or its equivalent [1] .... quarts	365	365	365	365	[2] 365	[2] 365	240	182	182	305
Potatoes, sweetpotatoes .... pounds	100	100	100	110	125	160	300	160	350	165
Dried beans, peas, nuts .... do	----	7	10	15	15	30	30	30	35	20
Tomatoes, citrus fruits .... do	75	75	75	90	90	100	100	100	100	90
Leafy, green, and yellow vegetables .... pounds	60	75	90	90	110	110	100	100	100	100
Dried fruits .... do	7	10	15	20	25	30	45	35	40	25
Other vegetables, fruits .... do	90	100	125	150	175	270	300	270	270	210
Fats [3] .... do	10	15	28	35	42	65	80	65	95	52
Sugar [4] .... do	7	15	30	40	45	75	115	75	115	60
Lean meat, poultry, fish .... do	----	25	60	75	90	110	150	125	150	100
Eggs .... dozen	20	20	20	20	15	15	15	15	15	17

LEVEL 3—LIBERAL DIET

Item	Child under 4 years	Boy 4 to 6 years; girl 4 to 7 years	Boy 7 to 8 years; girl 8 to 10 years	Boy 9 to 10 years; girl 11 to 13 years	Boy 11 to 12 years; girl over 13 years; moderately active woman	Active boy 13 to 15 years; very active woman	Active boy over 15 years	Moderately active man	Very active man	Average per capita, based on 1930 census of population
Flour, cereals .... pounds	45	55	65	65	65	105	125	125	200	100
Or—										
Bread .... do	30	45	60	60	60	120	150	150	240	------
Flour, cereals .... do	25	25	25	25	25	25	25	25	40	------
Milk, or its equivalent [1] .... quarts	365	365	365	365	[2] 365	[2] 365	240	182	182	305
Potatoes, sweetpotatoes .... pounds	100	100	100	100	110	150	300	150	350	155
Dried beans, peas, nuts .... do	----	2	3	5	5	10	10	10	10	7
Tomatoes, citrus fruits .... do	75	75	80	90	110	120	120	120	120	110
Leafy, green, and yellow vegetables .... pounds	60	75	90	90	120	150	180	180	180	135
Dried fruits .... do	5	5	8	10	15	25	30	25	30	20
Other vegetables, fruits .... do	140	200	300	300	300	350	400	400	400	325
Fats [3] .... do	10	15	27	35	40	65	80	65	100	52
Sugar [4] .... do	7	15	30	35	40	75	115	75	115	60
Lean meat, poultry, fish .... do	10	40	90	120	150	200	250	220	250	165
Eggs .... dozen	25	30	30	30	30	30	30	30	30	30

[1] Approximately equivalent to the food value of 1 quart of fluid whole milk: 17 ounces of evaporated milk; 1 quart of fluid skim milk and 1½ ounces of butter; 5 ounces of American Cheddar cheese; 4½ ounces of dried whole milk; 3½ ounces of dried skim milk and 1½ ounces of butter.

[2] For the adult woman this may be reduced to 182 quarts. For pregnant or nursing mother it should be increased to 365 quarts.

[3] Including butter, oils, bacon, and salt pork.

[4] 1 pint (1½ pounds) of molasses or heavy cane or sorgo sirup is approximately equivalent in fuel value to 1 pound of granulated sugar. The unrefined molasses and sirups are also valuable for their calcium and iron content.

Bureau of Home Economics; adapted from Circular 296, Diets at Four Levels of Nutritive Content and Cost, by Hazel K. Stiebeling and Medora M. Ward.

TABLE 488.—*Summary of results of 1933 cotton acreage-adjustment campaign of the Agricultural Adjustment Administration, by States*

[Statement as of Feb. 20, 1934]

State	Growers' offers accepted and approved for payment	Acreage removed from production	Quantity removed from production [1]	Quantity optioned	Total cash payments	Total available advance on options	Total cotton adjustment payments and advances on cotton options
	Number	*Acres*	*Bales*	*Bales*	*Dollars*	*Dollars*	*Dollars*
Missouri	8, 972	112, 473	80, 002	27, 134	1, 843, 120	542, 680	2, 385, 800
Virginia	3, 170	9, 790	5, 714	4, 805	130, 047	96, 100	226, 147
North Carolina	49, 911	224, 475	142, 293	104, 609	2, 832, 555	2, 092, 180	4, 924, 735
South Carolina	68, 239	422, 897	227, 373	180, 671	4, 737, 023	3, 613, 420	8, 350, 443
Georgia	97, 066	694, 847	359, 053	213, 550	8, 001, 598	4, 271, 000	12, 272, 598
Florida	4, 439	22, 809	6, 394	3, 856	263, 268	77, 120	340, 388
Tennessee	46, 504	264, 287	135, 461	66, 182	3, 341, 764	1, 323, 640	4, 665, 404
Alabama	140, 741	812, 860	329, 906	195, 392	9, 640, 760	3, 907, 840	13, 548, 600
Mississippi	108, 491	934, 348	371, 394	286, 839	10, 144, 493	5, 736, 780	15, 881, 273
Arkansas	99, 673	927, 185	376, 305	249, 387	10, 950, 001	4, 987, 740	15, 937, 741
Louisiana	62, 107	454, 062	171, 936	117, 702	5, 012, 775	2, 354, 040	7, 366, 815
Oklahoma	87, 794	1, 189, 318	522, 504	203, 262	11, 727, 047	4, 065, 240	15, 792, 287
Texas	250, 518	4, 350, 565	1, 701, 999	749, 814	43, 467, 926	14, 996, 280	58, 464, 206
New Mexico	1, 598	30, 395	28, 487	13, 409	363, 881	268, 180	632, 061
Arizona	703	21, 622	15, 289	14, 194	267, 836	283, 880	551, 716
California	392	12, 966	13, 481	9, 808	166, 457	196, 160	362, 617
Kansas	27	289	175	65	3, 181	1, 300	4, 481
Kentucky	88	2, 803	1, 701	1, 126	41, 865	22, 520	64, 385
United States	1, 030, 433	10, 487, 991	4, 489, 467	2, 441, 805	112, 935, 597	48, 836, 100	161, 771, 697

[1] Based on yield shown in crop report of Dec. 8, 1933.

Agricultural Adjustment Administration.
Performance certificates received totaled 1,027,585. This represents a performance of 99 percent. Some performance certificates covered more than 1 contract.

TABLE 489.—*Summary of results* [1] *of 1933 cigar-leaf tobacco (filler and binder types) acreage-adjustment program of the Agricultural Adjustment Administration, by districts and by States*

[Approximate totals, Feb. 10, 1934]

District	Extent of sign-up			Base acreage planted to tobacco			Acreage retired after planting	
	Official [2] tobacco acreage, average 1931 and 1932	Tobacco acreage reported on accepted contracts, average 1931 and 1932	Percentage of official acreage signed	Base acreage of farms under contract	Tobacco planted in 1933 on farms under contract [3]	Percentage of base acreage planted in 1933	Tobacco acreage on farms under contract retired after planting	Percentage of contract acreage retired
	Acres	*Acres*	*Percent*	*Acres*	*Acres*	*Percent*	*Acres*	*Percent*
New England	20, 400	9, 374	46. 0	9, 254	2, 822	30. 5	339	12. 0
Pennsylvania-New York	42, 800	23, 708	55. 4	26, 743	16, 989	63. 5	7, 069	41. 6
Miami Valley	31, 450	25, 414	80. 8	26, 866	11, 380	42. 4	3, 803	33. 4
Wisconsin-Minnesota	35, 250	32, 149	91. 2	29, 559	7, 751	26. 2	1, 190	15. 3
Total	129, 900	90, 645	69. 8	92, 425	38, 942	42. 1	12, 401	31. 8

State and district	Contracts	Total amount of first payment	State and district	Contracts	Total amount of first payment
	Number	*Dollars*		*Number*	*Dollars*
Connecticut	851	145, 456	Ohio	4, 729	196, 355
Massachusetts	448	65, 111	Indiana	32	894
Vermont	18	1, 648			
New Hampshire	21	1, 431	Total Miami Valley	4, 761	197, 249
Total New England	1, 338	213, 646	Wisconsin	6, 925	279, 005
			Minnesota	601	14, 524
Pennsylvania	3, 654	302, 783	Illinois	4	156
New York	319	14, 754			
			Total Wis.-Minn.	7, 530	293, 685
Total Pa.-N.Y.	3, 973	317, 537			
			Grand total	[1] 17, 602	[1] 1, 022, 117

[1] Data compiled from 17,602 contracts. About 225 contracts not tabulated when compilation was made.
[2] Official reports of Bureau of Agricultural Economics.
[3] Of the total number of producers signing contracts, about 40 percent grew no tobacco in 1933.

Agricultural Adjustment Administration.

TABLE 490.—*Preliminary summary of results of 1933 wheat acreage-reduction campaign for 1934 and 1935 of the Agricultural Adjustment Administration, by States*

[Approximate totals, Feb. 13, 1934]

State	Acreage			Production		Estimated amount of 1933 benefit payments [4]
	Official [1] seeded acreage, average 1930–32	Applicants' claimed acreage, average 1930–32 [2]	Percentage of official acreage	Official [1] production estimate, average 1928–32	Applicants' claimed production, average 1928–32 [3]	
	Acres	*Acres*	*Percent*	*Bushels*	*Bushels*	*Dollars*
Alabama	4,000			34,400		
Arizona	28,300	6,164	22	602,400	139,231	21,052
Arkansas	30,000	1,812	6	247,200	18,120	2,740
California	677,000	449,760	66	11,046,400	8,264,152	1,249,541
Colorado	1,754,700	1,506,140	86	17,111,200	14,546,056	2,199,359
Delaware	94,300	36,700	39	1,799,600	710,186	107,380
Georgia	52,000	4,179	8	510,400	51,887	7,844
Idaho	1,174,300	984,355	84	27,487,600	21,684,814	3,278,742
Illinois	1,970,700	1,012,139	51	32,532,400	17,356,167	2,624,252
Indiana	1,652,300	750,029	45	26,522,200	13,117,589	1,983,379
Iowa	369,300	144,940	39	7,445,200	3,223,666	487,419
Kansas	13,516,000	12,314,963	[5] 91	177,431,200	160,162,664	24,216,597
Kentucky	258,700	139,719	54	3,002,000	1,711,298	258,749
Maine	2,300			51,400		
Maryland	439,300	290,528	66	8,647,800	5,442,638	822,927
Michigan	719,000	245,530	34	15,522,600	6,252,204	945,328
Minnesota	1,367,700	855,967	63	20,946,200	12,549,150	1,897,431
Mississippi				2,600		
Missouri	1,535,700	700,086	46	20,362,400	10,886,495	1,646,038
Montana	4,445,700	4,350,189	[5] 94	45,167,400	42,301,676	6,396,014
Nebraska	3,674,300	2,662,240	72	56,537,600	40,320,569	6,096,468
Nevada	15,000	8,601	57	377,600	210,504	31,828
New Jersey	50,300	3,376	7	1,156,800	74,605	11,280
New Mexico	479,700	380,947	79	4,148,000	3,238,485	489,660
New York	219,700	12,472	6	4,411,200	288,153	43,568
North Carolina	333,700	21,689	6	3,653,400	332,982	50,346
North Dakota [6]	10,368,000	10,030,303	[5] 95	102,903,000	97,201,044	14,696,797
Ohio	1,745,300	619,260	35	30,479,800	11,303,151	1,709,040
Oklahoma	4,532,700	3,622,392	80	54,352,000	46,293,413	6,999,564
Oregon	1,027,000	847,166	82	21,205,000	17,350,381	2,623,375
Pennsylvania	954,700	88,929	9	17,387,200	1,658,077	250,703
South Carolina	57,000			575,200		
South Dakota	3,895,300	3,620,175	93	37,631,800	34,351,809	5,193,991
Tennessee	248,700	69,663	28	2,918,200	873,145	132,023
Texas	4,346,300	3,640,135	84	41,082,600	35,413,220	5,354,478
Utah	272,300	210,128	77	5,553,800	4,385,799	663,132
Vermont	700			15,000		
Virginia	600,700	214,094	36	9,220,400	3,663,057	553,854
Washington	2,471,300	1,949,847	79	42,882,200	37,493,304	5,668,985
West Virginia	113,000	32,948	29	1,642,600	415,080	62,760
Wisconsin	100,700	14,445	14	1,869,000	276,995	41,884
Wyoming	360,300	239,231	66	3,753,000	2,827,095	427,457
Total	65,958,000	52,081,241	[5] 78	860,228,000	656,388,861	99,245,985

[1] Official estimates of the Bureau of Agricultural Economics, December 1933.
[2] Some counties and individuals in numerous counties used 4-year and 5-year bases, which are included in this figure.
[3] Applicants' production adjusted to a 5-year base.
[4] Estimated payments at 28 cents per bushel on 54 percent of the base production.
[5] Acreage in excess of official estimates allowed. Percentage of sign-up computed from the total acreage allowed.
[6] Estimated figures, as reports from some counties not received at time of this tabulation.

Agricultural Adjustment Administration.

TABLE 491.—*Marketing agreements entered into during 1933 through the Special Crops Section of the Agricultural Adjustment Administration*

[All data subject to minor revision]

Commodity and State	Effective date in 1933	Unit	Volume included under agreement	United States production, 1933 season	Percentage under agreement
Cling peaches canned in California	Aug. 17	Cases	[1] 10,000,000	10,000,000	100
California fresh deciduous tree fruits, except apples.[2]	Sept. 2	Cars	[3] 13,175	120,332	52
Northwestern [4] fresh deciduous tree fruits.	Oct. 14	do	[5] 49,366		
California Flame Tokay grapes	Sept. 30	do	4,032		(6)
Walnuts grown in California, Oregon, and Washington.	Oct. 9	Tons	43,900	[7] 43,900	100
California ripe olives used for canning	Dec. 13	do	12,000	12,000	100
Oranges, grapefruit, and tangarines:					
California and Arizona	Dec. 14	Boxes	27,508,000		
Florida	do	do	22,866,000		
Texas	Dec. 26	do	1,638,000		
Total (including mixed citrus)		do	[8] 52,012,000	52,180,000	99.7
Canning tomatoes [9]	August	Tons	993,400	993,400	100
Canning corn [9]	do	do	393,000	393,000	100
Canning lima beans [9]	do	do	8,800	8,800	100
Canning beets [9]	September	do	24,800	24,800	100
Cabbage for sauerkraut [9]	do	do	95,400	95,400	100

[1] Basis of 24 No. 2½ cans. Actual pack exceeded this slightly; the exact amount not yet determined.
[2] Agreement not consummated early enough to be operative for 1933 apple crop.
[3] Includes apricots, cherries, peaches, pears, plums, and fresh prunes for 1933.
[4] Washington, Oregon, Idaho, and Montana.
[5] Total of cherries, peaches, pears, plums, and fresh prunes shipped in 1933 and apples in 1932–33.
[6] Represents 25 percent of table grapes shipped from California; United States table grapes not listed separately.
[7] Total 1933 production, plus some carry-over.
[8] Average boxes per carload: California and Arizona, 462; Florida and Texas, 360. (Florida and Texas include movement by truck.) Crop year 1932–33.
[9] At the request of the Agricultural Adjustment Administration, the canning industry agreed to voluntary price increases to growers. No licenses issued.

Agricultural Adjustment Administration; compiled from records of the Special Crops Section and reports of the Bureau of Agricultural Economics.

MISCELLANEOUS AGRICULTURAL STATISTICS

TABLE 492.—*Temperature: Normal* [1] *and 1933, by months, at selected points in the United States*

Station	January		February		March		April		May		June		July		August		September		October		November		December		Annual	
	Normal	1933	Normal	1933	Normal	1933	Normal	1933	Normal	1933	Normal	1933	Normal	1933	Normal	1933	Normal	1933	Normal	1933	Normal	1933	Normal	1933	Normal	1933
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.
Greenville, Maine	12.2	22.1	13.0	19.5	24.8	22.4	36.5	38.0	49.4	51.6	58.6	61.2	65.1	62.8	62.2	63.0	52.0	55.7	45.0	43.2	31.2	24.2	18.4	10.0	39.0	39.5
Burlington, Vt	18.8	29.1	19.4	23.9	29.1	26.5	43.3	43.8	56.5	55.8	65.7	66.5	70.3	69.5	67.9	66.8	60.3	61.0	49.2	46.3	36.3	27.8	24.4	16.2	45.1	44.4
Boston, Mass	27.9	37.8	28.8	33.7	35.6	35.7	46.4	46.5	57.1	61.6	66.5	69.6	71.7	70.8	69.9	71.8	63.2	65.8	53.6	52.7	42.0	38.3	32.5	26.8	49.6	50.9
Buffalo, N.Y	24.6	34.6	24.3	37.4	31.1	30.8	42.8	44.8	54.6	56.0	64.4	67.1	69.8	71.6	68.6	68.8	62.4	64.5	51.9	50.5	39.4	34.2	29.8	27.1	47.0	48.1
Canton, N.Y	16.3	28.8	18.0	23.4	27.7	25.6	42.5	43.8	56.2	57.2	65.1	66.8	68.9	69.0	66.6	66.4	59.3	61.2	47.2	44.6	33.9	25.8	22.7	13.3	43.7	43.8
Trenton, N.J	30.5	39.6	30.7	33.3	39.1	38.6	49.8	51.0	61.1	64.2	69.5	72.0	74.5	74.1	73.0	73.5	66.9	69.0	55.6	54.2	44.4	41.6	34.4	32.2	52.5	53.6
Pittsburgh, Pa	30.7	39.0	32.3	33.0	39.6	38.0	51.2	51.6	62.4	63.5	70.7	73.3	74.6	75.0	72.9	72.4	66.4	69.0	55.7	53.8	43.2	39.6	34.2	35.3	52.8	53.6
Scranton, Pa	26.6	35.3	27.3	29.8	35.7	35.2	48.1	49.9	59.4	61.4	67.8	70.2	71.7	72.8	69.8	70.0	62.9	64.6	51.9	50.9	40.5	36.7	30.7	28.8	49.4	50.5
Cincinnati, Ohio	30.3	40.6	32.8	34.2	40.9	41.7	52.4	52.9	63.1	66.2	71.2	77.6	75.1	76.5	73.6	74.6	67.1	73.0	55.7	54.8	42.5	42.4	33.4	38.6	53.2	56.1
Cleveland, Ohio	26.5	38.0	27.4	31.2	34.6	35.8	46.2	49.8	57.9	60.8	67.1	73.0	71.4	74.5	70.0	71.4	63.9	68.2	53.6	53.4	40.9	39.0	31.2	33.6	49.2	52.4
Evansville, Ind	33.5	43.8	36.3	36.0	45.9	45.1	56.7	56.3	66.7	68.6	75.1	80.5	78.9	80.0	77.4	76.7	70.7	77.3	59.4	58.4	46.6	46.0	37.1	42.0	57.0	59.2
Indianapolis, Ind	28.4	39.2	31.1	31.0	40.0	39.6	52.1	52.1	62.9	64.9	71.6	78.4	75.7	77.8	73.7	73.5	66.9	73.2	55.7	54.0	42.3	40.7	32.2	36.0	52.7	55.0
Fort Wayne, Ind	26.1	36.2	26.8	28.0	38.1	35.6	49.0	48.9	60.1	61.4	68.5	76.0	73.7	75.4	71.2	70.8	65.1	69.0	53.6	51.0	40.8	37.6	28.7	31.2	50.1	51.8
Chicago, Ill	23.7	36.7	26.3	26.2	35.3	35.4	46.9	46.8	57.5	60.0	67.3	76.2	72.5	75.6	71.6	71.4	65.2	69.8	54.0	52.8	40.1	38.0	28.8	31.3	49.1	51.7
Peoria, Ill	23.1	37.6	25.9	26.8	37.0	39.4	50.9	50.9	61.7	62.8	70.9	78.9	75.4	78.5	72.5	73.0	64.3	72.6	52.0	51.8	37.5	39.6	28.1	32.6	49.9	53.7
Cairo, Ill	34.9	45.8	38.5	37.8	47.2	47.6	58.1	58.5	68.4	70.3	76.3	79.6	79.6	79.4	77.8	76.8	71.5	77.1	60.4	59.6	47.3	48.4	37.8	44.5	58.2	60.4
Grand Rapids, Mich	24.5	34.0	23.7	24.8	33.4	33.1	47.0	46.7	58.0	59.7	67.8	74.0	72.3	75.6	69.7	70.2	62.7	68.0	51.2	50.0	38.4	35.0	28.5	28.0	48.1	49.9
Alpena, Mich	19.1	28.0	18.0	19.8	25.5	27.4	38.6	39.4	50.5	52.6	60.4	65.0	65.9	69.8	64.1	64.8	57.6	61.4	47.1	45.8	34.4	29.6	24.8	22.0	42.2	43.8
Marquette, Mich	16.3	24.0	16.3	15.7	24.8	24.7	37.8	37.2	49.0	50.6	58.9	64.8	64.9	66.0	63.8	65.3	57.5	61.6	46.7	43.8	33.3	28.2	22.6	18.3	41.0	41.7
Madison, Wis	16.7	30.8	19.1	18.9	30.6	31.0	45.4	44.1	57.6	57.9	67.2	76.0	72.1	73.6	69.8	69.6	62.4	67.2	50.3	49.0	35.2	34.0	22.8	23.4	45.8	48.0
Green Bay, Wis	15.7	27.6	17.4	18.0	28.6	28.9	43.2	41.8	54.9	57.2	64.9	72.9	70.0	73.0	67.7	68.2	60.4	65.8	48.5	46.4	34.0	31.0	22.3	20.4	44.0	45.9
Duluth, Minn	7.9	17.6	11.4	6.8	23.7	24.0	37.0	36.5	47.3	49.6	57.2	63.2	63.9	65.3	62.6	64.0	55.1	60.1	44.1	40.7	30.0	23.6	15.9	8.6	38.0	38.3
St. Paul, Minn.[2]	12.6	23.0	15.8	13.8	29.1	31.2	45.6	45.2	57.9	59.1	67.1	77.8	72.1	64.0	69.4	-----	61.3	-----	48.6	-----	32.5	-----	19.0	-----	44.2	-----
Des Moines, Iowa	20.1	34.2	23.7	24.3	35.9	37.4	50.1	50.2	61.3	61.8	70.6	79.8	75.4	78.0	73.1	71.8	65.6	70.5	53.4	51.0	38.4	39.8	26.0	28.8	49.5	52.3
Dubuque, Iowa	19.1	33.0	22.2	21.4	34.0	35.0	48.6	47.8	60.3	60.7	69.4	77.4	74.1	75.6	71.7	70.5	64.0	68.4	51.9	49.8	37.0	36.4	24.7	26.0	48.1	50.2
St. Louis, Mo	31.1	43.6	34.8	35.1	44.1	44.8	56.1	55.5	67.0	67.2	75.0	81.7	78.8	81.2	77.5	77.8	70.5	77.4	58.8	57.4	45.4	46.0	34.9	40.2	56.2	59.0
St. Joseph, Mo	27.0	40.1	32.4	29.8	42.2	42.6	54.2	54.6	64.0	64.2	73.8	80.6	78.9	80.0	76.7	75.0	69.0	73.4	56.7	55.8	43.4	45.1	30.7	36.4	54.1	56.5
Springfield, Mo	33.5	44.3	35.2	34.5	45.2	46.2	56.0	55.2	64.5	65.8	72.5	78.2	76.8	78.3	75.7	74.7	68.9	74.4	58.2	57.6	45.7	48.1	36.2	43.1	55.7	58.4
Bismarck, N.Dak	7.8	14.2	10.3	10.6	24.2	31.0	42.1	42.5	54.5	55.6	63.7	73.2	69.8	73.9	67.3	69.3	58.1	62.9	44.9	43.4	28.5	31.4	14.7	12.0	40.5	43.3
Devils Lake, N.Dak	1.8	9.5	5.1	5.8	19.8	25.8	38.8	38.4	52.6	55.0	61.9	70.2	67.4	70.8	64.8	68.2	55.9	60.6	42.4	38.2	24.5	24.4	9.5	3.8	37.0	39.2
Pierre, S.Dak	16.0	28.2	18.6	19.8	31.5	36.2	46.8	47.6	58.0	57.6	68.5	79.8	75.3	81.2	72.8	72.9	63.8	68.0	49.8	51.6	33.6	39.5	21.8	23.6	46.4	50.5
North Platte, Nebr	22.9	33.2	26.6	25.4	36.6	40.2	48.6	49.2	58.7	57.8	67.5	77.0	72.9	78.2	70.8	71.6	62.1	69.2	49.7	54.2	36.6	42.0	26.7	33.3	48.3	52.6
Omaha, Nebr	21.9	36.2	25.5	26.0	37.0	39.0	51.2	52.0	62.4	62.0	71.6	81.5	76.7	78.8	74.4	73.6	66.8	71.6	54.3	53.8	38.5	42.0	26.4	31.3	50.6	54.0
Concordia, Kans	26.4	38.6	29.8	30.4	41.0	43.0	53.5	52.8	63.2	63.0	73.0	82.0	78.0	80.6	76.5	76.4	68.3	73.0	55.9	56.2	41.4	46.3	30.7	36.9	53.1	56.6
Dodge City, Kans	29.0	38.8	33.2	31.5	42.8	46.3	53.6	53.6	63.5	64.2	72.5	79.9	78.4	81.9	77.7	76.8	69.4	74.2	56.1	58.6	42.6	47.0	32.6	40.4	54.3	57.8
Iola, Kans	29.8	43.0	33.2	34.0	44.5	48.0	56.2	57.4	65.2	67.5	74.1	79.7	78.2	81.8	77.1	77.1	69.8	75.4	57.8	58.4	44.1	49.6	33.9	42.4	55.3	59.5
Washington, D.C	33.4	42.6	35.3	38.4	42.6	43.0	53.3	55.7	63.7	67.2	72.2	74.7	76.8	76.1	75.0	76.0	68.1	71.8	57.4	56.5	45.2	45.0	36.6	38.5	55.0	57.1
Lynchburg, Va	37.5	45.4	40.3	40.5	47.3	46.4	57.3	56.4	67.3	69.7	74.6	76.0	77.5	76.5	75.6	75.6	69.0	75.5	58.5	57.4	47.2	46.4	39.5	43.6	57.6	59.1
Norfolk, Va	40.6	49.3	42.7	44.6	48.2	49.0	56.8	58.6	66.2	71.1	74.4	76.8	78.7	76.8	77.4	78.4	71.6	77.2	62.5	63.4	51.4	50.0	43.1	47.0	59.5	61.8
Parkersburg, W.Va	32.5	41.6	34.2	35.5	42.8	42.2	53.4	54.3	63.8	67.0	71.4	75.2	75.4	75.2	73.9	73.6	67.3	71.8	56.1	55.0	43.8	42.7	35.2	38.8	54.2	56.1
Lexington, Ky	32.9	42.5	35.4	35.2	43.7	42.6	54.3	53.2	64.3	66.9	72.2	76.5	75.9	75.7	74.5	73.3	68.5	72.7	57.4	54.6	44.8	42.0	35.8	-----	55.0	-----

Charlotte, N.C	41.2	49.2	43.9	44.4	50.4	51.2	59.8	59.8	68.9	73.0	75.5	78.3	78.4	77.6	77.1	76.7	71.5	76.7	61.7	61.8	50.6	51.0	43.0	48.0	60.2	62.3
Wilmington, N.C	46.5	53.6	47.9	50.6	53.3	54.8	62.0	62.6	70.8	74.3	76.8	77.5	79.1	77.7	77.6	79.2	73.1	78.9	65.3	65.8	56.0	54.5	49.1	54.2	63.1	65.3
Charleston, S.C	49.9	55.8	52.4	53.8	57.4	58.2	64.5	64.5	72.7	77.9	78.9	79.6	81.4	80.3	81.0	81.4	76.6	81.2	67.8	68.6	58.1	57.0	51.7	58.0	66.0	68.0
Greenville, S.C	40.3	49.7	43.3	44.9	49.9	52.4	58.6	59.4	67.2	72.9	74.1	78.8	76.9	77.2	75.8	78.0	70.6	76.0	60.2	62.5	49.6	49.8	42.2	48.0	59.1	62.5
Atlanta, Ga	42.6	50.2	45.3	44.4	52.0	52.4	61.0	59.6	69.9	74.1	76.0	78.0	78.1	77.4	77.0	77.4	72.4	77.6	63.0	63.8	52.1	51.6	44.7	51.9	61.2	63.2
Thomasville, Ga	51.0	57.8	55.0	55.8	60.2	60.6	66.7	66.0	74.0	78.6	79.5	79.8	81.8	80.4	81.0	80.6	76.8	80.8	68.2	70.8	58.5	59.6	52.5	60.8	67.1	69.3
Jacksonville, Fla	55.4	59.4	58.0	59.8	62.6	62.4	68.7	67.4	75.0	78.6	79.9	79.0	82.1	81.0	81.7	82.0	78.3	82.1	71.1	72.0	62.2	61.0	56.3	63.0	69.3	70.6
Miami, Fla	66.5	70.1	67.1	72.6	70.2	70.9	72.8	75.6	76.4	79.8	80.0	80.4	81.0	81.5	81.4	82.6	80.1	82.3	77.0	77.9	71.8	70.7	68.0	70.8	74.4	76.3
Memphis, Tenn	40.9	50.3	44.3	42.8	52.3	52.4	61.8	61.5	70.6	73.4	77.6	80.3	80.7	81.2	79.4	79.2	73.6	79.8	63.3	63.4	51.7	53.1	43.6	49.4	61.6	63.9
Nashville, Tenn	38.6	47.0	41.6	41.1	49.2	49.2	59.0	58.8	68.2	71.4	75.6	77.8	79.1	78.6	77.8	76.8	71.8	77.0	61.0	60.6	49.0	49.6	41.0	48.2	59.3	61.3
Birmingham, Ala	45.1	51.8	48.0	46.9	55.4	54.9	63.3	61.6	71.1	75.8	77.9	78.6	80.2	79.6	79.2	79.8	74.8	79.7	64.8	66.6	53.9	54.6	46.4	56.0	63.3	65.5
Mobile, Ala	51.5	56.9	54.7	54.4	59.7	60.3	66.3	66.8	74.4	78.2	80.3	79.4	81.4	81.0	81.0	82.2	78.1	82.6	69.3	70.4	58.6	60.0	52.2	61.4	67.3	69.5
Meridian, Miss	47.0	53.6	49.6	49.4	57.1	57.8	64.0	63.8	71.3	76.8	78.1	77.8	80.4	79.2	79.5	80.4	74.5	80.4	64.3	66.4	54.2	56.5	47.7	57.4	64.0	66.6
Vicksburg, Miss	48.2	55.2	51.8	50.2	58.5	59.3	65.6	64.4	72.9	76.8	79.0	78.6	81.3	80.6	80.8	80.6	76.3	81.1	66.7	67.2	56.6	58.3	50.0	58.8	65.6	67.6
New Orleans, La	54.2	60.0	57.3	58.1	62.8	63.9	68.8	70.0	75.4	79.8	80.6	81.6	82.4	82.3	82.2	83.6	79.2	84.0	71.0	73.4	61.6	64.1	55.6	64.7	69.3	72.1
Shreveport, La	47.0	55.6	50.9	49.2	58.3	59.0	65.8	65.9	73.6	77.8	80.7	81.5	83.2	82.4	82.0	83.0	76.9	82.8	66.6	68.2	56.0	59.8	49.1	58.2	65.8	68.6
Amarillo, Tex	35.3	43.8	38.1	36.9	46.9	50.8	55.8	55.8	64.1	66.5	72.8	79.2	76.8	82.3	75.7	77.2	69.3	75.7	57.7	62.4	45.5	50.4	37.0	47.4	56.3	60.7
Brownsville, Tex	59.8	65.8	62.6	63.6	68.2	70.0	73.7	75.2	78.6	81.1	82.4	81.2	83.6	82.5	83.9	81.9	80.6	81.8	74.9	77.9	67.2	69.7	61.2	68.8	73.1	75.0
El Paso, Tex	45.0	43.7	49.0	46.6	55.8	58.9	63.4	60.5	71.5	70.6	79.6	80.0	81.1	84.0	79.2	82.0	73.9	79.8	63.5	68.6	52.7	55.4	44.9	50.1	63.3	65.0
Fort Worth, Tex	45.4	54.6	48.3	46.8	57.7	59.2	65.0	66.0	72.3	75.5	79.9	81.6	83.6	85.4	83.0	83.3	76.9	82.8	66.7	70.2	55.5	59.0	47.5	54.2	65.2	68.2
Galveston, Tex	53.8	60.3	56.3	55.0	62.4	63.2	68.7	70.5	74.8	79.0	80.7	81.5	83.4	82.6	83.0	83.6	80.1	83.8	72.7	75.6	63.3	66.4	56.4	65.5	69.6	72.3
San Antonio, Tex	52.3	60.0	55.4	52.8	62.8	65.8	69.1	71.6	75.1	79.8	81.0	80.9	83.8	85.0	83.5	83.2	79.0	82.8	70.5	75.6	60.3	65.3	53.7	62.5	68.9	72.1
Oklahoma City, Okla	36.4	47.5	39.6	38.4	50.0	52.0	59.8	61.4	67.7	70.7	76.0	81.7	80.6	83.5	79.7	78.9	72.8	78.6	61.5	63.3	48.8	52.8	39.3	45.4	59.4	62.8
Little Rock, Ark	41.4	50.2	44.9	42.0	53.0	52.9	62.1	61.4	70.3	72.2	77.4	79.4	80.9	81.0	79.8	79.2	74.1	79.2	63.6	63.4	52.1	53.6	44.2	48.8	62.0	63.6
Havre, Mont	12.9	21.6	13.6	16.0	27.1	35.0	43.7	42.0	53.4	54.4	62.0	68.7	68.3	72.7	65.4	68.7	56.4	57.2	44.5	44.4	31.2	36.4	20.4	16.3	41.6	44.4
Miles City, Mont	14.5	20.4	16.8	15.3	28.6	37.1	44.7	44.0	56.7	55.8	66.0	73.6	72.9	79.2	71.5	71.7	61.2	63.2	46.5	48.6	30.9	38.2	21.0	20.4	44.3	47.3
Kalispell, Mont	20.4	26.4	23.3	18.9	32.9	35.5	43.6	42.4	51.4	48.9	57.7	61.9	64.1	66.6	62.8	64.6	53.5	52.2	43.5	45.6	32.4	37.2	24.9	31.4	42.5	44.3
Cheyenne, Wyo	25.5	29.3	27.3	21.6	33.1	35.4	40.9	37.8	50.3	48.3	60.4	66.6	66.7	70.2	65.6	65.0	57.0	60.8	44.8	51.0	34.8	40.2	28.5	39.0	44.6	47.1
Sheridan, Wyo	18.8	23.4	22.0	16.6	31.3	34.2	43.4	39.9	52.0	51.6	61.0	68.5	67.8	72.8	66.2	66.6	56.2	58.4	44.4	49.4	32.4	38.5	22.5	28.2	43.2	45.7
Pueblo, Colo	29.9	37.0	32.9	30.5	41.6	44.0	50.1	47.0	59.2	59.0	69.0	73.4	74.2	77.5	72.7	72.6	64.6	69.8	52.0	56.6	39.4	45.0	31.5	41.6	51.4	54.5
Grand Junction, Colo	24.0	20.2	32.9	16.5	43.6	43.4	52.4	48.0	61.1	57.4	71.4	77.2	77.7	80.9	75.4	76.4	66.2	71.2	52.8	58.7	39.3	41.4	27.5	32.6	52.0	52.0
Santa Fe, N.Mex	28.8	27.2	33.1	27.2	39.7	41.8	46.7	42.8	55.7	53.5	64.8	66.1	69.0	70.6	67.4	67.8	60.9	65.5	50.4	53.7	38.9	41.7	30.7	37.0	48.8	49.6
Roswell, N.Mex	39.2	41.2	42.5	37.4	51.3	53.0	60.6	56.0	69.4	66.9	76.3	77.4	78.9	80.6	76.6	77.8	70.3	75.0	59.5	63.7	48.1	50.8	41.2	46.7	59.5	60.5
Phoenix, Ariz	51.2	48.6	55.1	49.6	60.7	61.9	67.0	64.7	75.0	72.6	84.5	87.6	89.8	95.0	88.5	92.4	82.7	86.8	70.6	76.8	59.7	62.7	52.0	54.6	69.7	71.1
Modena, Utah	26.7	21.8	31.0	16.8	38.2	39.0	46.0	42.8	53.5	49.0	63.3	64.8	70.6	74.4	69.2	69.6	60.0	65.2	48.0	55.2	36.4	38.6	28.1	36.5	47.6	47.8
Salt Lake City, Utah	29.2	29.0	33.8	21.9	41.7	40.8	49.6	46.8	57.4	53.1	67.4	75.6	75.7	81.3	74.5	74.0	64.4	67.8	52.5	58.8	41.1	43.2	31.9	39.6	51.6	52.7
Winnemucca, Nev	28.6	26.1	33.5	17.8	40.0	39.8	46.7	45.7	53.9	50.1	62.8	68.0	70.6	76.2	69.3	70.4	59.2	59.4	48.3	55.1	38.4	39.2	30.0	36.9	48.4	48.7
Boise, Idaho	29.8	31.8	34.8	22.8	42.7	41.2	50.4	48.6	57.1	54.0	65.3	69.7	72.9	76.4	71.8	73.0	61.9	61.2	51.1	56.4	41.0	42.4	32.1	42.4	50.9	51.7
Seattle, Wash	39.5	39.6	41.1	37.5	44.9	45.0	49.4	49.4	54.5	53.4	59.0	60.2	63.1	64.2	63.1	66.8	58.1	57.6	51.4	54.0	45.6	46.8	41.7	45.1	51.0	51.6
Walla Walla, Wash	32.7	39.1	37.1	31.8	46.1	45.8	53.1	52.6	59.6	56.2	66.5	68.0	74.0	76.6	72.7	75.2	63.8	62.0	53.5	58.8	42.8	43.8	35.5	44.4	53.1	54.5
Portland, Oreg	39.4	39.8	42.1	38.2	46.9	47.0	51.8	51.6	56.9	53.9	62.4	62.3	66.7	68.0	66.7	69.6	61.7	59.6	54.2	57.2	46.8	46.5	41.2	46.6	53.1	53.4
Roseburg, Oreg	41.2	39.8	43.4	40.7	47.1	47.0	51.0	51.0	56.0	52.2	62.5	62.4	67.4	69.0	68.0	69.6	62.9	59.4	53.9	57.0	45.9	45.6	41.8	48.4	53.4	53.5
Eureka, Calif	46.9	43.6	47.2	44.4	48.3	49.0	49.9	48.2	52.0	51.0	54.3	55.6	55.5	54.4	56.0	55.3	55.9	55.4	53.6	52.8	51.1	49.8	48.2	50.2	51.6	50.8
Fresno, Calif	46.2	43.0	51.1	49.0	55.0	56.2	60.2	61.0	67.1	62.8	75.8	73.5	82.1	85.6	80.7	82.2	73.4	72.4	64.0	71.4	54.2	57.5	46.2	46.4	63.0	63.4
Los Angeles, Calif	54.6	54.4	55.5	56.0	57.5	59.7	59.4	59.1	62.2	60.4	66.4	65.0	70.2	69.4	71.1	70.2	69.0	64.6	65.3	66.7	60.9	66.5	56.6	57.4	62.4	62.4
Sacramento, Calif	45.8	42.0	50.1	47.2	54.3	54.4	58.1	58.2	63.3	59.6	69.4	68.6	73.2	77.6	72.9	75.4	69.3	68.3	62.9	68.4	53.6	56.4	46.2	45.6	59.9	60.1
San Diego, Calif	54.3	52.8	55.1	52.7	56.7	57.0	58.5	57.8	60.8	58.2	63.9	61.6	67.2	65.4	68.7	66.6	67.1	62.8	63.7	62.4	59.7	61.4	56.0	55.1	61.0	59.5
San Francisco, Calif	49.9	47.0	52.2	51.2	54.2	55.4	55.0	55.5	56.8	55.2	58.5	57.6	58.5	59.5	59.1	59.8	60.9	61.2	60.5	62.4	56.3	60.0	51.3	50.5	56.1	56.3

[1] Normals are based on records of 30 or more years of observations. Normal and 1933 means based on mean of the daily temperature extremes. [2] Station closed June 30, 1933.

Weather Bureau.

TABLE 493.—*Precipitation: Normal* [1] *and 1933, by months, at selected points in the United States*

Station	January		February		March		April		May		June		July		August		September		October		November		December		Annual	
	Normal	1933	Normal	1933	Normal	1933	Normal	1933	Normal	1933	Normal	1933	Normal	1933	Normal	1933	Normal	1933	Normal	1933	Normal	1933	Normal	1933	Normal	1933
	In.	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*
Greenville, Maine	2.81	2.14	2.88	2.28	3.12	4.35	2.95	4.28	3.43	3.72	3.63	3.33	4.72	3.87	3.63	3.34	4.08	4.40	3.91	4.86	3.46	2.17	3.17	3.14	41.79	41.88
Burlington, Vt	1.76	.75	1.57	1.67	2.04	2.92	2.15	3.89	2.85	2.16	3.38	2.59	3.50	.58	3.37	4.47	3.48	2.86	2.97	4.26	2.66	1.33	1.88	2.42	31.61	29.90
Boston, Mass	3.61	2.04	3.37	3.77	3.57	6.80	3.34	7.37	3.18	2.74	2.89	1.22	3.49	2.63	3.62	3.41	3.14	10.94	3.15	3.11	3.33	.65	3.45	2.93	40.14	47.61
Buffalo, N.Y	3.30	1.61	2.95	2.48	2.57	2.85	2.56	2.05	3.10	3.00	2.82	1.51	3.03	.15	3.08	2.41	2.92	.98	3.29	1.62	3.02	2.68	3.36	3.76	36.00	25.10
Canton, N.Y	2.50	1.51	2.27	2.18	2.50	2.59	2.18	3.99	3.00	5.24	3.29	2.11	3.50	1.99	3.65	3.27	3.35	2.70	3.03	2.58	3.16	2.64	2.69	3.49	35.12	34.29
Trenton, N.J	3.31	1.93	3.27	2.66	3.40	5.59	2.94	4.40	3.08	4.91	3.09	2.93	3.94	3.42	4.75	10.09	3.40	4.86	2.78	1.30	2.73	1.08	3.35	2.62	40.04	45.79
Pittsburgh, Pa	3.05	2.39	2.62	1.67	3.03	5.77	2.92	4.25	3.21	6.55	3.81	1.16	4.05	3.21	3.23	5.51	2.58	4.20	2.52	.46	2.29	1.68	2.86	3.42	36.17	40.27
Scranton, Pa	3.03	1.12	3.04	1.74	3.20	3.53	2.77	3.73	3.27	3.82	3.67	2.92	4.03	6.71	3.69	8.06	3.17	5.33	3.03	2.80	2.77	1.22	3.02	2.15	38.69	43.13
Cincinnati, Ohio	3.48	3.18	2.99	1.99	3.89	8.00	3.12	4.46	3.70	8.81	3.66	3.30	3.31	1.50	3.41	2.79	2.65	4.72	2.51	1.40	2.85	1.28	2.98	2.95	38.55	44.38
Cleveland, Ohio	2.51	1.40	2.51	1.99	2.71	3.51	2.44	2.42	3.12	2.86	3.12	.39	3.45	1.26	2.77	1.98	3.33	2.73	2.78	.97	2.64	3.06	2.44	1.60	33.82	24.17
Evansville, Ind	3.74	3.15	3.24	3.10	4.19	5.01	3.90	5.10	3.86	6.75	4.04	.38	3.42	5.61	3.36	2.27	3.31	2.52	2.82	3.11	3.74	.72	3.54	2.69	43.16	40.41
Indianapolis, Ind	2.95	2.02	2.73	1.90	3.93	6.20	3.62	4.16	3.89	7.10	3.62	2.50	3.34	5.85	3.31	1.97	3.40	5.27	2.78	1.28	3.35	1.16	2.98	2.17	39.90	41.58
Fort Wayne, Ind	2.33	1.83	2.35	1.68	3.22	4.00	3.07	2.97	3.85	7.06	3.57	.50	3.60	3.39	3.11	2.43	3.06	7.44	2.60	1.58	2.88	1.17	2.58	1.14	36.22	35.19
Chicago, Ill	1.90	2.32	2.14	1.22	2.58	4.05	2.78	2.61	3.54	5.03	3.30	3.44	3.33	2.70	3.21	1.14	3.14	3.78	2.53	3.64	2.37	.68	2.04	1.39	32.86	32.00
Peoria, Ill	1.78	1.69	2.01	1.33	2.73	4.70	3.38	3.05	4.06	7.97	3.77	1.15	3.58	1.93	3.12	2.66	4.03	5.92	2.29	2.23	2.37	.26	1.77	1.18	34.89	34.07
Cairo, Ill	3.76	3.78	3.13	3.77	3.75	6.39	3.72	3.68	3.71	9.02	3.83	.91	3.07	7.49	3.02	4.41	2.89	7.81	2.76	2.75	3.68	1.23	3.40	2.60	40.72	53.84
Grand Rapids, Mich	2.35	.87	2.24	1.97	2.48	2.13	2.77	3.88	3.44	5.31	3.48	2.05	2.92	2.78	2.61	1.41	3.53	3.59	2.81	4.67	2.77	2.83	2.57	1.74	33.97	33.23
Alpena, Mich	1.89	1.17	1.71	1.50	1.99	1.53	2.24	3.41	3.05	3.51	3.30	2.02	2.76	2.10	2.86	.76	2.98	3.77	2.71	3.11	2.60	1.59	2.08	2.85	30.17	27.32
Marquette, Mich	2.33	2.11	1.90	3.44	2.26	1.95	2.43	4.32	2.96	2.08	3.22	1.32	3.12	1.55	2.67	.80	3.25	4.03	2.76	2.06	2.91	2.79	2.66	2.56	32.47	29.01
Madison, Wis	1.38	.72	1.50	.86	2.07	2.68	2.77	3.75	3.85	9.35	3.76	1.64	3.88	3.33	3.21	2.57	3.72	3.58	2.43	1.48	1.78	.44	1.63	.85	31.98	31.25
Green Bay, Wis	1.54	1.43	1.56	.75	2.04	2.26	2.65	2.54	3.52	2.40	3.70	5.07	3.46	3.43	3.18	1.10	3.52	2.01	2.54	3.59	2.16	.70	1.71	1.19	31.58	26.47
Duluth, Minn	.97	.74	1.05	.90	1.54	.79	2.06	2.15	3.25	2.15	3.91	2.90	3.76	4.09	3.18	.99	3.31	5.14	2.31	3.43	1.45	.88	1.15	1.34	27.94	25.50
St. Paul, Minn. [2]	.92	1.28	.92	.87	1.43	2.15	2.35	1.32	3.27	7.75	4.14	.92	3.57	----	3.01	----	3.07	----	2.20	----	1.30	----	1.06	----	27.24	----
Des Moines, Iowa	1.07	1.06	1.12	.16	1.78	2.19	2.91	.93	4.56	2.65	4.76	.23	3.50	4.06	3.52	1.85	3.67	2.40	2.50	3.15	1.43	.22	1.22	.77	32.04	19.67
Dubuque, Iowa	1.30	.58	1.38	.54	2.03	4.76	2.85	1.53	4.22	7.24	4.31	1.74	3.94	3.84	3.24	2.32	4.01	3.28	2.48	.97	1.70	.28	1.44	1.62	32.90	28.70
St. Louis, Mo	2.34	2.18	2.56	.96	3.38	4.91	3.81	3.84	4.34	8.59	3.82	.15	2.98	4.63	2.99	.60	3.46	2.60	2.72	2.97	2.83	1.64	2.21	1.70	37.44	34.77
St. Joseph, Mo	1.05	.37	1.38	.31	2.04	2.81	3.02	3.42	4.24	3.49	4.94	6.05	3.68	2.59	3.50	5.09	3.87	3.44	2.69	.79	1.63	.52	.97	1.41	33.01	30.29
Springfield, Mo	2.34	2.68	2.35	1.09	3.39	2.40	3.86	6.61	5.19	6.79	4.68	3.43	4.21	4.17	4.09	4.86	3.52	7.02	3.05	3.17	2.79	1.01	2.31	.84	41.78	44.07
Bismarck, N.Dak	.45	.83	.44	.22	.89	.68	1.52	.73	2.32	2.38	3.35	1.95	2.24	1.61	1.82	.48	1.23	.37	.94	.44	.57	.74	.57	.43	16.34	10.86
Devils Lake, N.Dak	.47	.88	.50	.11	.78	.27	1.52	.62	2.03	2.22	3.56	.96	2.57	2.58	2.48	.27	1.63	.60	1.25	.62	.72	.73	.54	1.05	18.05	10.91
Pierre, S.Dak	.46	.03	.46	.25	.86	2.24	1.81	1.26	2.49	2.16	2.96	2.32	2.68	1.39	2.09	4.28	1.10	.82	.82	.05	.47	.44	.50	.87	16.70	16.11
North Platte, Nebr	.39	.16	.53	.15	.86	.62	2.06	4.78	2.78	2.61	3.22	1.27	2.74	.94	2.39	3.35	1.35	2.01	1.07	T	.47	.17	.53	1.06	18.39	17.12
Omaha, Nebr	.70	.94	.89	.25	1.37	3.25	2.51	.38	3.77	.73	4.56	.25	3.54	5.03	3.05	1.63	3.21	4.72	2.17	.36	1.07	.37	.93	1.39	27.77	19.30
Concordia, Kans	.61	.19	.88	.11	1.23	1.97	2.36	2.48	4.18	1.55	4.41	1.34	3.78	3.94	2.91	3.30	2.60	3.47	1.97	.06	.99	.84	.63	.74	26.55	19.99
Dodge City, Kans	.41	T	.77	.17	.89	.09	1.94	4.06	2.89	3.16	3.30	1.23	3.14	1.75	2.67	4.79	1.90	1.01	1.30	1.27	.73	.38	.57	.75	20.51	18.66
Iola, Kans	1.32	1.36	1.67	.46	2.62	2.86	3.49	3.49	4.70	5.18	5.47	.73	3.75	4.16	3.49	7.37	4.93	4.06	2.99	2.03	1.83	1.16	1.39	2.57	37.65	35.43
Washington, D.C	3.55	3.25	3.27	2.63	3.75	3.24	3.27	4.67	3.70	6.26	4.13	3.88	4.71	6.71	4.01	9.91	3.24	2.62	2.84	2.56	2.37	.95	3.32	2.43	42.16	49.11
Lynchburg, Va	3.43	2.73	3.15	2.17	3.54	2.72	2.95	4.41	3.63	4.26	3.79	2.61	4.21	4.30	3.78	3.50	3.31	.35	3.15	1.45	2.33	1.25	3.26	3.86	40.53	33.61
Norfolk, Va	3.10	2.99	3.22	2.52	3.77	1.98	3.23	2.13	3.81	1.76	4.22	2.05	5.75	5.26	5.22	13.13	3.23	2.07	3.04	.39	2.16	.99	3.34	.66	44.09	35.93
Parkersburg, W.Va	3.58	2.96	3.13	1.92	3.49	6.43	3.19	3.47	3.38	7.50	4.00	1.24	4.29	3.51	3.51	6.17	2.76	2.20	2.48	.51	2.57	1.56	3.03	3.60	39.41	41.07
Lexington, Ky	4.18	6.52	3.62	3.36	4.32	4.75	3.50	4.03	3.81	3.47	4.05	4.56	3.65	4.72	3.45	3.02	3.07	5.47	2.59	2.14	3.34	1.55	3.77	----	43.35	----
Charlotte, N.C	4.00	1.37	4.18	2.37	4.17	2.52	3.31	2.02	3.63	2.46	4.22	1.31	5.10	2.08	5.07	5.27	2.99	4.69	2.95	2.97	2.57	1.03	3.86	1.79	46.05	29.88

Wilmington, N.C	3.29	2.22	3.26	5.83	3.17	2.88	2.66	4.50	3.44	3.34	5.10	1.61	7.13	7.63	6.36	6.45	4.51	8.27	3.27	.07	1.96	.38	2.78	.19	46.93	43.37
Charleston, S.C	3.02	3.85	2.98	5.93	3.02	.99	2.53	2.29	3.00	1.76	4.59	2.72	6.89	8.12	6.53	8.69	4.53	13.04	3.27	2.81	2.14	2.25	2.72	.40	45.22	52.85
Greenville, S.C	4.87	2.86	5.18	3.93	5.15	2.23	3.72	3.72	4.03	3.45	4.55	1.59	5.36	3.07	5.50	5.92	3.68	2.48	3.12	.64	3.18	2.18	4.84	4.15	53.18	36.22
Atlanta, Ga	4.95	2.43	4.79	5.66	5.30	4.42	3.61	2.47	3.47	3.22	3.74	5.65	4.65	3.22	4.45	1.81	2.99	1.25	2.59	2.44	3.03	.80	4.70	2.46	48.27	35.83
Thomasville, Ga	4.10	4.46	4.46	8.16	4.09	5.55	3.34	8.18	3.63	.82	5.45	1.96	6.70	7.82	5.75	4.82	4.88	2.80	2.96	.07	2.68	.25	4.31	1.42	52.35	46.31
Jacksonville, Fla	2.80	2.18	2.97	3.23	2.91	2.97	2.38	7.16	4.02	3.04	5.33	6.84	6.71	10.80	5.81	4.68	7.35	3.76	4.46	11.99	1.98	.95	3.02	.72	49.74	58.32
Miami, Fla	2.52	.57	1.83	2.54	2.17	1.69	3.09	4.71	6.22	4.67	6.86	9.39	5.42	7.64	6.17	12.52	8.34	5.03	8.44	15.78	2.91	.90	1.69	.61	55.66	66.05
Memphis, Tenn	4.81	2.33	4.36	5.07	5.26	6.87	4.78	4.93	4.19	5.90	3.55	.30	3.18	6.15	3.36	2.01	2.80	2.94	2.68	2.00	4.24	1.17	4.51	10.75	47.72	50.42
Nashville, Tenn	4.76	3.51	4.13	6.21	5.11	6.14	4.13	4.17	3.87	9.94	4.00	1.76	3.88	5.37	3.71	2.79	3.42	3.66	2.49	1.23	3.50	1.47	4.20	6.40	47.20	52.65
Birmingham, Ala	5.52	3.09	5.06	5.64	5.70	6.18	4.81	2.86	3.95	3.03	4.46	2.65	5.17	4.64	4.26	5.23	3.38	2.74	2.42	1.86	3.31	2.57	5.14	3.09	53.18	43.58
Mobile, Ala	4.85	4.10	5.33	6.88	5.98	6.39	4.63	14.12	4.32	1.48	5.43	5.90	6.89	11.75	6.92	1.94	5.00	1.40	3.60	2.66	3.64	.66	5.02	3.86	61.61	61.14
Meridian, Miss	5.32	2.16	5.45	4.94	5.23	5.73	4.78	5.46	4.32	1.76	4.55	5.12	4.89	11.63	4.54	1.56	2.96	2.00	2.39	1.69	3.32	1.66	5.23	4.76	52.98	48.47
Vicksburg, Miss	5.37	2.63	4.82	8.06	5.57	5.03	5.19	6.87	4.32	3.66	3.99	1.96	4.53	7.06	3.46	2.64	2.87	1.52	2.77	.55	3.71	1.24	5.33	4.97	51.93	46.19
New Orleans, La	4.34	3.59	4.25	5.62	4.72	6.15	5.24	6.38	4.60	3.01	5.88	.59	6.37	7.32	5.80	7.28	5.03	3.08	3.30	.64	3.14	3.60	4.79	1.23	57.46	48.49
Shreveport, La	3.93	2.85	3.29	6.72	4.11	6.25	4.63	5.19	4.22	3.86	3.50	.15	3.56	25.45	2.70	2.19	2.80	1.07	2.69	4.55	3.65	.79	4.29	4.64	43.37	63.71
Amarillo, Tex	.51	.02	.71	.29	.71	.56	1.83	.64	2.79	2.01	2.84	.05	2.84	.66	3.08	6.02	2.30	.88	1.66	.49	.92	.58	.80	.02	20.99	12.22
Brownsville, Tex	1.50	.22	1.21	.84	1.26	.40	1.43	.53	2.27	4.85	2.87	.41	1.96	4.50	2.55	8.06	5.52	13.58	3.29	3.10	1.98	2.42	1.56	.05	27.40	38.96
El Paso, Tex	.46	.19	.41	.23	.36	T	.26	.09	.33	.04	.58	2.14	1.99	1.34	1.70	.27	1.25	.99	.80	.60	.50	.04	.52	.00	9.16	5.93
Fort Worth, Tex	2.05	1.96	1.76	2.47	2.32	2.18	4.02	1.57	4.65	4.67	3.35	.03	2.61	5.70	2.62	2.25	2.49	4.94	2.81	1.24	2.58	.66	1.87	2.13	33.13	29.80
Galveston, Tex	3.41	3.32	2.83	4.34	2.68	5.52	3.06	.46	3.42	1.43	4.37	.98	3.71	8.66	4.28	2.06	5.57	3.65	4.36	4.80	3.33	4.76	3.75	5.54	44.77	45.52
San Antonio, Tex	1.46	.66	1.65	1.92	1.84	.54	3.19	1.30	3.20	2.23	2.46	1.74	2.17	1.98	2.42	2.78	3.05	3.18	2.23	.27	1.90	6.53	1.61	.39	27.18	23.52
Oklahoma City, Okla	1.19	.33	1.11	1.42	1.98	2.88	3.29	3.05	4.88	3.98	3.67	.15	2.86	1.73	2.89	5.38	3.05	3.37	2.86	3.34	1.87	1.88	1.50	1.61	31.15	29.12
Little Rock, Ark	4.73	3.30	3.84	2.66	4.62	5.30	5.19	5.10	4.78	5.93	3.76	.99	3.50	3.97	3.75	6.54	3.17	6.00	2.71	1.61	4.19	1.68	4.14	3.52	48.38	46.60
Havre, Mont	.73	.35	.50	.27	.51	.39	.99	1.44	2.04	2.26	2.86	2.47	1.87	.37	1.22	3.90	1.29	.45	.67	.84	.61	.53	.61	.92	13.90	14.19
Miles City, Mont	.66	1.35	.49	.18	.86	.66	1.12	1.20	2.24	1.69	2.66	.80	1.54	.49	1.08	1.38	1.04	.90	.90	.39	.57	.41	.63	.79	13.79	10.24
Kalispell, Mont	1.57	1.10	1.11	1.25	.95	.21	.80	1.43	1.46	2.51	2.06	1.37	1.10	.21	.87	1.77	1.24	1.04	1.06	2.70	1.35	1.31	1.45	3.22	15.02	18.12
Cheyenne, Wyo	.42	.24	.64	.30	1.02	.88	1.99	4.79	2.43	3.44	1.61	1.03	2.10	1.31	1.55	2.02	1.20	2.06	.96	T	.52	.27	.55	.54	14.99	16.88
Sheridan, Wyo	.85	.67	.70	.64	1.16	1.80	1.92	2.83	2.65	2.75	2.04	.07	1.22	.25	.91	1.01	1.27	.51	1.07	.83	.63	.39	.64	.43	15.06	12.18
Pueblo, Colo	.31	.00	.47	.36	.59	.43	1.31	2.60	1.60	2.55	1.36	2.66	1.94	1.98	1.82	1.57	.75	.41	.66	.00	.36	.12	.50	1.09	11.67	13.77
Grand Junction, Colo	.60	.54	.58	.27	.76	.31	.83	.32	.81	.54	.40	.25	.61	1.50	1.17	.43	.92	1.04	.95	.32	.57	.66	.63	.34	8.83	6.52
Santa Fe, N.Mex	.67	.73	.75	.21	.80	.29	1.00	.80	1.26	.99	1.08	2.30	2.38	2.00	2.28	1.90	1.45	1.24	1.18	1.16	.68	1.02	.74	.47	14.27	13.11
Roswell, N.Mex	.53	.15	.57	.39	.74	T	.89	.16	1.09	.50	1.67	.63	2.26	.79	2.15	3.28	2.11	1.67	1.42	.09	.85	1.13	.66	T	14.94	8.79
Phoenix, Ariz	.80	2.31	.77	.15	.68	.00	.40	1.11	.12	T	.07	.23	1.07	.30	.95	.38	.75	1.62	.47	.38	.70	.62	1.00	T	7.78	7.10
Modena, Utah	.85	1.38	.95	.04	1.03	.28	.89	.23	.79	1.13	.32	T	1.08	2.15	1.29	1.49	.78	.05	.74	.60	.59	.87	.83	.38	10.14	8.60
Salt Lake City, Utah	1.31	2.07	1.51	.99	1.98	1.44	2.05	1.28	1.92	3.25	.80	T	.51	.18	.85	.20	.98	.34	1.44	.66	1.35	.19	1.43	.51	16.13	11.11
Winnemucca, Nev	1.03	1.14	.91	.64	.96	.76	.84	.27	.88	.50	.72	.02	.21	.06	.20	.09	.41	.34	.62	1.07	.68	.09	1.08	.69	8.54	5.67
Boise, Idaho	1.73	1.08	1.44	1.51	1.35	.59	1.18	.74	1.43	1.54	.92	.14	.24	T	.19	.01	.53	.12	1.24	.88	1.28	.24	1.57	1.10	13.10	7.95
Seattle, Wash	4.94	5.20	3.89	2.17	3.05	5.20	2.38	.84	1.87	2.63	1.33	1.26	.63	1.13	.70	1.56	1.77	3.02	2.84	3.16	5.03	3.41	5.60	15.33	34.03	44.91
Walla Walla, Wash	1.96	1.28	1.76	1.73	1.61	1.32	1.51	1.27	1.61	2.13	1.12	.42	.39	.04	.49	.15	.95	1.27	1.53	2.05	2.02	1.08	2.06	3.48	17.01	16.22
Portland, Oreg	6.60	7.94	5.36	4.26	3.91	5.10	2.87	.95	2.19	3.59	1.52	2.60	.61	T	.64	.86	1.98	2.97	3.12	4.59	6.10	2.54	6.72	17.45	41.62	52.85
Roseburg, Oreg	5.31	8.16	4.49	2.22	3.28	2.15	2.27	.85	1.93	3.15	1.09	.72	.32	.00	.34	.24	1.27	.79	2.61	1.22	4.66	1.02	5.34	4.69	32.91	25.21
Eureka, Calif	7.11	7.04	6.48	2.98	5.23	7.20	3.33	.97	1.80	4.23	.72	.30	.11	T	.18	.05	1.01	.70	2.33	2.08	5.18	.38	6.28	6.50	39.76	32.43
Fresno, Calif	1.73	2.18	1.43	.45	1.58	1.38	.95	.12	.44	.34	.08	.07	.01	T	.01	T	.21	.00	.57	.53	.93	.00	1.45	1.59	9.39	6.66
Los Angeles, Calif	3.10	8.46	3.07	.00	2.78	.19	1.04	.56	.45	.21	.08	.47	.01	T	.02	.01	.17	.00	.68	.34	1.20	.04	2.63	8.48	15.23	18.76
Sacramento, Calif	3.72	2.85	3.02	.95	2.57	1.44	1.51	.03	.77	.30	.15	.08	.00	T	.00	.00	.38	.03	.92	.66	1.88	.00	3.03	5.74	17.95	12.08
San Diego, Calif	2.06	4.32	2.03	.02	1.72	.13	.77	1.75	.35	.53	.05	.08	.03	.02	.04	.01	.08	.02	.54	.16	.76	.03	1.87	1.10	10.30	8.17
San Francisco, Calif	4.54	5.68	3.85	1.13	3.14	2.93	1.61	.06	.80	1.36	.18	.01	.02	.00	.01	T	.45	.14	1.12	1.49	2.35	.00	3.95	4.19	22.02	16.99

[1] Normals are based on records of 20 or more years of observations.

[2] Station closed June 30, 1933.

Weather Bureau.

T.=Trace, indicates an amount too small to measure.

TABLE 494.—*Frost: Dates of killing frosts, with length of growing season*

Station	Date of last killing frost in spring, 1933	Date of first killing frost in fall, 1933	Averages and extremes of killing frost for 30 to 51 years: Spring frosts: Latest date	Spring frosts: Average date	Fall frosts: Earliest date	Fall frosts: Average date of first	Length of growing season between average dates of killing frosts
							Days
Greenville, Maine	May 29[1]	Oct. 4[1]	June 23	May 30	Aug. 26	Sept. 14	107
Portland, Maine	Apr. 21	Oct. 26	June 20	Apr. 19	Sept. 11	Oct. 17	181
Concord, N.H	May 6	Sept. 12	June 5	May 7	Sept. 6	Oct. 3	149
Northfield, Vt	May 18	Oct. 3	June 29	May 22	Aug. 26	Sept. 18	119
Boston, Mass	Apr. 23	Oct. 26	May 16	Apr. 14	Sept. 26	Oct. 26	195
Hartford, Conn	Apr. 28[1]	Oct. 15	May 12	Apr. 20	Sept. 11	Oct. 14	177
Albany, N.Y	do	Oct. 25[1]	May 30	Apr. 24	Sept. 15	Oct. 15	174
Buffalo, N.Y	Apr. 26	Oct. 26	May 23	Apr. 28	Oct. 2	Oct. 22	177
Canton, N.Y	Apr. 28	Oct. 14	June 2	May 4	Sept. 11	Sept. 30	149
Setauket, N.Y	Apr. 28[1]	Oct. 26[1]	May 17	Apr. 16	Oct. 21	Nov. 10	208
Syracuse, N.Y	Apr. 27[1]	Oct. 29	May 5	Apr. 23	Sept. 21	Oct. 22	182
Atlantic City, N.J	Mar. 29	Oct. 26	Apr. 30	Apr. 10	Oct. 1	Nov. 5	209
Trenton, N.J	Apr. 23	do	May 12	Apr. 16	Oct. 11	Oct. 24	191
Erie, Pa	Apr. 27[1]	do	May 17	Apr. 20	Oct. 9	Nov. 1	195
Harrisburg, Pa	Mar. 30	do	May 12	Apr. 9	Oct. 3	Oct. 28	202
Pittsburgh, Pa	Apr. 27	Oct. 14	May 29	Apr. 23	Sept. 19	Oct. 21	181
Scranton, Pa	Apr. 28	Oct. 19	May 12	Apr. 21	Sept. 14	Oct. 14	176
Cincinnati, Ohio	Apr. 23	Oct. 26	Apr. 27	Apr. 8	Sept. 30	Oct. 23	198
Cleveland, Ohio	Apr. 26	Nov. 5	May 21	Apr. 16	Oct. 2	Nov. 3	201
Columbus, Ohio	Apr. 23	Oct. 26	May 17	Apr. 18	Sept. 21	Oct. 19	184
Dayton, Ohio	Apr. 27	Oct. 14	May 25	Apr. 19	Sept. 30	Oct. 20	184
Toledo, Ohio	do	Oct. 25	May 29	Apr. 22	Sept. 9	Oct. 18	179
Evansville, Ind	Mar. 22[1]	Nov. 8	Apr. 26	Apr. 5	Oct. 9	Oct. 29	207
Fort Wayne, Ind	Apr. 26[1]	Nov. 4	May 28	Apr. 25	Sept. 14	Oct. 13	171
Indianapolis, Ind	Mar. 28	Nov. 8	May 25	Apr. 16	Sept. 21	Oct. 20	187
Cairo, Ill	Mar. 22	do	Apr. 30	Mar. 31	Sept. 30	Oct. 29	212
Chicago, Ill	Mar. 26[1]	Oct. 25	May 25	Apr. 16	Sept. 20	Oct. 19	186
Peoria, Ill	Mar. 28	do	May 11	Apr. 15	Sept. 26	do	187
Springfield, Ill	Mar. 24[1]	Nov. 8	May 25	do	Sept. 25	do	187
Alpena, Mich	Apr. 26	Oct. 23	June 9	May 13	Sept. 6	Oct. 1	141
Detroit, Mich	do	Oct. 13	May 31	Apr. 28	Sept. 21	Oct. 15	170
Grand Haven, Mich	Apr. 27	Oct. 20	May 28	Apr. 30	Sept. 23	Oct. 18	171
Grand Rapids, Mich	Apr. 23	Oct. 23	May 30	May 1	do	do	170
Ludington, Mich	May 4	do	June 17	May 2	Sept. 4	Oct. 21	172
Marquette, Mich	May 5[1]	Oct. 18	June 6	May 13	Aug. 23	Oct. 9	149
Green Bay, Wis	May 10	Oct. 13	May 30	May 5	Sept. 16	do	157
La Crosse, Wis	Apr. 27[1]	do	May 24	Apr. 29	Sept. 10	do	163
Madison, Wis	Apr. 26	do	May 25	Apr. 26	Sept. 16	Oct. 17	174
Milwaukee, Wis	Apr. 15	Oct. 20	May 29	do	Sept. 25	Oct. 18	175
Duluth, Minn	May 10[1]	Oct. 17	June 14	May 6	Sept. 10	Oct. 5	152
Minneapolis, Minn	Apr. 26[1]	Oct. 13	May 20	Apr. 27	Sept. 13	Oct. 10	166
Moorhead, Minn	May 10	Oct. 8	June 8	May 12	Aug. 25	Sept. 24	135
Charles City, Iowa	Apr. 27	Oct. 12	May 21	Apr. 29	Sept. 12	Oct. 2	156
Des Moines, Iowa	do	Oct. 18	May 31	Apr. 21	Sept. 13	Oct. 9	171
Dubuque, Iowa	Apr. 15	Oct. 13	May 21	Apr. 20	Sept. 26	Oct. 16	179
Keokuk, Iowa	Apr. 11[1]	Oct. 18	May 4	Apr. 12	Sept. 13	Oct. 17	188
Columbia, Mo	Apr. 7	Oct. 25	May 9	Apr. 13	do	Oct. 18	188
St. Joseph, Mo	Apr. 11	do	Apr. 28	Apr. 9	Sept. 26	Oct. 17	191
St. Louis, Mo	Mar. 22	Nov. 8	May 22	Apr. 3	Sept. 30	Oct. 29	209
Springfield, Mo	Mar. 21	do	May 19	Apr. 12	do	Oct. 22	193
Bismarck, N.Dak	Apr. 26	Sept. 26	June 7	May 11	Aug. 23	Sept. 21	133
Devils Lake, N.Dak	do	Oct. 4	do	May 16	Aug. 8	Sept. 24	131
Williston, N.Dak	May 10	Sept. 26	June 16	do	Aug. 22	Sept. 20	127
Huron, S. Dak	Apr. 26[1]	Oct. 8	June 21	May 9	Aug. 23	Sept. 25	139
Pierre, S.Dak	Apr. 15[1]	Oct. 7	May 24	Apr. 30	Sept. 12	Oct. 7	160
Rapid City, S. Dak	Apr. 14	Oct. 16	do	May 3	Sept. 13	Oct. 1	151
Yankton, S.Dak	Apr. 7	Oct. 8[1]	May 27	May 1	Sept. 14	Oct. 6	158
North Platte, Nebr	Apr. 14	Oct. 8	May 24	do	Sept. 10	Oct. 2	154
Omaha, Nebr	do	do	May 19	Apr. 14	Sept. 18	Oct. 15	184
Valentine, Nebr	Apr. 26	Oct. 1	June 21	May 6	Sept. 12	Oct. 2	149
Concordia, Kans	Apr. 6	Oct. 25	May 19	Apr. 17	Sept. 27	Oct. 16	182
Dodge City, Kans	Apr. 15	Oct. 9	May 27	Apr. 16	Sept. 23	Oct. 21	188
Iola, Kans	Apr. 11	Oct. 25	May 4	Apr. 7	Sept. 26	Oct. 17	193
Wichita, Kans	Mar. 21	Nov. 3	May 15	Apr. 9	Sept. 23	Oct. 23	197
Washington, D.C	Apr. 23	Oct. 26	May 12	Apr. 8	Oct. 2	Oct. 20	195
Lynchburg, Va	Mar. 30[1]	Oct. 27	May 7	Apr. 9	do	Oct. 27	201
Norfolk, Va	Mar. 11[1]	Nov. 9	Apr. 26	Mar. 25	Oct. 11	Nov. 16	236
Richmond, Va	Mar. 30	do	do	Mar. 31	Oct. 12	Nov. 2	216
Wytheville, Va	Apr. 13	Oct. 11	May 27	Apr. 20	Sept. 19	Oct. 17	180
Elkins, W.Va	do	Oct. 19	June 1	May 4	Sept. 20	Oct. 12	161
Parkersburg, W.Va	Apr. 24	Oct. 14	May 22	Apr. 17	Sept. 29	Oct. 18	184
Asheville, N.C	Apr. 13	Oct. 27	May 10	Apr. 11	Oct. 3	Oct. 22	194
Charlotte, N.C	Mar. 11	Nov. 9	Apr. 26	Mar. 25	Oct. 8	Nov. 5	225
Raleigh, N.C	do	do	do	Mar. 27	do	do	223
Wilmington, N.C	do	do	May 1	Mar. 21	Oct. 16	Nov. 15	239
Charleston, S.C	Feb. 12	Nov. 11	Apr. 2	Feb. 28	Oct. 28	Dec. 1	276

[1] Temperature 32° F. or below.

TABLE 494.—*Frost: Dates of killing frosts, with length of growing season*—Con.

Station	Date of last killing frost in spring, 1933	Date of first killing frost in fall, 1933	Averages and extremes of killing frost for 30 to 51 years: Spring frosts: Latest date	Spring frosts: Average date	Fall frosts: Earliest date	Fall frosts: Average date of first	Length of growing season between average dates of killing frosts
							Days
Columbia, S.C	Mar. 11	Nov. 9	Apr. 17	Mar. 17	Oct. 30	Nov. 18	246
Greenville, S.C	do	Nov. 8	Apr. 24	do	Oct. 10	Nov. 13	241
Atlanta, Ga	Mar. 5	Nov. 9	Apr. 17	Mar. 29	Oct. 11	Nov. 8	224
Augusta, Ga	Mar. 6	Nov. 11	do	Mar. 15	Oct. 21	Nov. 12	242
Macon, Ga	Mar. 11	do	Apr. 18	Mar 14	Oct. 11	Nov. 14	245
Savannah, Ga	Feb. 12	None	Apr. 13	Feb. 26	Oct. 25	Nov. 23	270
Thomasville, Ga	do	do	Apr. 26	Mar. 8	do	Nov. 20	257
Apalachicola, Fla	Feb. 9 [1]	do	Mar. 23	Feb. 5	Nov. 13	Dec. 28	326
Avon Park, Fla	None	do	Mar. 14	Jan. 12	Nov. 14	Dec. 26	348
Jacksonville, Fla	Feb. 9 [1]	do	Apr. 10	Feb. 16	Nov. 12	Dec. 7	294
Miami, Fla	None	do	Mar. 3	(2)	Nov. 21	(2)	(2)
Tampa, Fla	do	do	Mar. 19	(2)	do	(2)	(2)
Chattanooga, Tenn	Feb. 9	Nov. 8	May 14	Mar. 29	Sept. 30	Nov. 4	220
Knoxville, Tenn	Mar. 11	Nov. 9	Apr. 26	Apr. 2	Oct. 1	Oct. 29	210
Memphis, Tenn	Mar. 21	Nov. 8	Apr. 25	Mar. 21	Oct. 2	Nov. 4	228
Nashville, Tenn	Mar. 10	do	Apr. 24	Mar. 31	Oct. 8	Oct. 28	211
Birmingham, Ala	Mar. 4	Nov. 9	Apr. 20	Mar. 17	Oct. 21	Nov. 10	238
Mobile, Ala	Feb. 12	None	Apr. 6	Feb. 17	Oct. 31	Dec. 7	293
Montgomery, Ala	do	Dec. 8	Apr. 5	Mar. 8	Oct. 21	Nov. 13	250
New Orleans, La	Feb. 9 [1]	None	Mar. 27	Jan. 25	Nov. 11	Dec. 18	327
Shreveport, La	Mar. 21	Dec. 7	Apr. 9	Mar. 6	Oct. 20	Nov. 12	251
Abilene, Tex	Feb. 18	Dec. 6	Apr. 23	Mar. 23	Oct. 19	Nov. 9	231
Amarillo, Tex	Apr. 14	Nov. 5	May 23	Apr. 14	Oct. 16	Nov. 1	201
Brownsville, Tex	Feb. 8 [1]	None	Mar. 14	Jan. 25	Nov. 15	Dec. 23	332
Corpus Christi, Tex	Feb. 9	do	Mar. 19	Feb. 15	Nov. 29	Dec. 20	308
Del Rio, Tex	Feb. 12 [1]	do	Mar. 27	Feb. 23	Oct. 27	Nov. 27	277
El Paso, Tex	Apr. 15	Nov. 3	Apr. 26	Mar. 19	Oct. 23	Nov. 16	242
Fort Worth, Tex	Mar. 20	Nov. 8	Apr. 9	Mar. 10	Oct. 22	do	251
Galveston, Tex	Feb. 11 [1]	None	Mar. 19	Jan. 19	Nov. 16	Dec. 26	341
Palestine, Tex	Mar. 20	do	Apr. 5	Mar. 13	Oct. 20	Nov. 13	245
San Antonio, Tex	Feb. 12 [1]	do	do	Feb. 23	Oct. 30	Nov. 29	279
Taylor, Tex	do	Nov. 25 [1]	do	Mar. 5	do	Nov. 26	266
Oklahoma City, Okla	Mar. 21	Nov. 8	Apr. 30	Mar. 30	Oct. 7	Nov. 3	218
Fort Smith, Ark	do	Nov. 10	Apr. 17	Mar. 23	Oct. 9	Nov. 6	228
Little Rock, Ark	do	Nov. 8	Apr. 26	Mar. 18	Oct. 22	Nov. 14	241
Havre, Mont	May 10	Sept. 26	June 6	May 14	Aug. 25	Sept. 20	129
Helena, Mont	Apr. 18	Sept. 25	June 9	May 7	do	Sept. 29	145
Kalispell, Mont	Apr. 13	Sept. 26	June 7	May 10	Sept. 6	Sept. 30	143
Miles City, Mont	do	Oct. 16	May 31	May 5	Sept. 7	Oct. 2	150
Cheyenne, Wyo	May 12	do	June 13	May 18	Aug. 25	Sept. 22	127
Lander, Wyo	May 14	Sept. 16	June 20	do	Aug. 23	Sept. 18	123
Sheridan, Wyo	May 13	Sept. 23	June 6	May 20	Aug. 25	Sept. 20	123
Yellowstone Park, Wyo	May 28	Sept. 19	June 22	May 21	do	Sept. 16	118
Denver, Colo	May 11 [1]	Oct. 21 [1]	June 6	May 3	Sept. 12	Oct. 10	160
Grand Junction, Colo	Apr. 14	Nov. 2	May 14	Apr. 16	Sept. 14	Oct. 19	186
Pueblo, Colo	do	Oct. 22	June 2	Apr. 24	Sept. 12	Oct. 10	169
Roswell, N.Mex	do	Nov. 4	May 7	Apr. 10	Oct. 10	Oct. 28	201
Santa Fe, N.Mex	Apr. 20	Nov. 3	May 23	Apr. 25	Sept. 25	Oct. 19	177
Flagstaff, Ariz	June 6 [1]	Oct. 19	June 17	May 31	Sept. 12	Sept. 24	116
Phoenix, Ariz	Feb. 20 [1]	Dec. 17	Mar. 31	Feb. 10	Nov. 5	Dec. 3	296
Tucson, Ariz	Mar. 6 [1]	Nov. 6 [1]	Apr. 3	Mar. 11	Oct. 22	Nov. 9	243
Yuma, Ariz	Feb. 10	None	Mar. 15	Jan. 20	Nov. 19	Dec. 20	334
Modena, Utah	May 15	Nov. 1	July 3	May 21	Sept. 5	Sept. 29	131
Salt Lake City, Utah	Apr. 30 [1]	Nov. 2	June 18	Apr. 18	Sept. 22	Oct. 20	185
Reno, Nev	May 19 [1]	Nov. 1	June 13	May 14	Sept. 6	Oct. 6	145
Winnemucca, Nev	May 10	Oct. 13	June 22	do	Aug. 22	Sept. 27	136
Boise, Idaho	do	Oct. 21	June 16	Apr. 27	Sept. 11	Oct. 12	168
Lewiston, Idaho [3]	Apr. 13		May 10	Apr. 6	Sept. 21	Oct. 24	201
Pocatello, Idaho	May 9	Sept. 26	June 1	Apr. 29	Sept. 8	Oct. 6	160
Seattle, Wash	Feb. 27 [1]	None	May 10	Mar. 16	Oct. 18	Nov. 22	251
Spokane, Wash	Apr. 13 [1]	Sept. 25	June 8	Apr. 14	Sept. 7	Oct. 13	182
Walla Walla, Wash	Apr. 8	Nov. 4	May 9	Mar. 31	Sept. 24	Nov. 4	218
Baker, Oreg	May 8	Sept. 30	June 23	May 17	Aug. 30	Sept. 29	135
Portland, Oreg	Mar. 1	None	May 2	Mar. 15	Oct. 13	Nov. 21	251
Roseburg, Oreg	Mar. 23	do	May 24	Apr. 8	Sept. 24	Nov. 11	217
Eureka, Calif	Feb. 24 [1]	do	Apr. 7	Mar. 16	Nov. 11	Dec. 18	277
Fresno, Calif	Feb. 10	Dec. 1	Apr. 14	Feb. 22	Oct. 31	Nov. 30	281
Independence, Calif	Apr. 18	Nov. 6 [1]	May 24	Apr. 13	Sept. 24	Oct. 27	197
Los Angeles, Calif	None	None	Feb. 17	(2)	Nov. 2	(2)	(2)
Red Bluff, Calif	Feb. 18 [1]	Dec. 16	May 9	Mar. 8	Nov. 5	Dec. 5	272
Sacramento, Calif	Feb. 10	None	May 7	Feb. 19	Nov. 11	Nov. 29	283
San Bernardino, Calif	Apr. 21 [1]	Nov. 7 [1]	Apr. 23	Mar. 8	Oct. 23	Nov. 22	259
San Diego, Calif	None	None	Jan. 20	(2)	Dec. 26	(2)	(2)
San Francisco, Calif	do	do	Mar. 26	Jan. 13	Dec. 4	Dec. 29	350

[1] Temperature 32° F. or below. [2] Frosts do not occur every year. [3] Station closed June 30, 1933.

Weather Bureau.

TABLE 495.—*Monthly and annual rainfall by States, 1932*

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
	In.	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*
Alabama	7.19	4.97	4.25	3.02	5.21	5.00	4.83	5.37	4.78	6.43	3.70	8.86	63.61
Arizona	.85	2.92	.32	.40	.16	.34	2.67	1.87	.59	1.22	.00	2.09	13.43
Arkansas	9.67	4.72	4.48	2.85	1.96	4.86	5.00	1.78	2.54	3.41	1.98	7.86	51.11
California	3.14	4.09	1.06	1.54	1.23	.18	.04	.01	.11	.35	.94	2.91	15.60
Colorado	.77	1.13	1.20	1.79	.83	1.60	2.25	2.02	.56	.93	.25	.84	14.17
Florida	2.30	1.18	3.51	1.27	6.34	8.34	3.62	9.93	6.22	4.31	4.47	1.01	52.50
Georgia	5.72	3.73	4.46	1.74	3.57	6.52	5.07	6.13	3.94	5.09	4.59	6.24	56.80
Idaho	1.85	1.63	3.18	1.83	2.20	1.35	.91	.56	.15	1.12	2.40	2.04	19.22
Illinois	3.07	1.39	2.37	1.85	2.40	3.97	3.35	5.51	3.05	3.94	1.75	3.90	36.55
Indiana	5.43	1.71	2.83	2.67	1.38	4.64	3.48	3.66	5.83	3.93	2.44	4.82	42.82
Iowa	1.81	.83	1.46	1.96	3.99	5.17	3.12	7.10	2.05	1.79	1.55	1.44	32.27
Kansas	1.33	.71	.89	2.21	2.25	5.73	3.12	2.92	2.15	.99	.32	1.14	23.76
Kentucky	8.17	3.36	4.95	3.88	1.39	4.88	4.31	4.25	3.66	3.31	2.71	4.35	49.22
Louisiana	10.08	4.88	3.31	3.45	5.73	2.92	4.59	5.22	4.38	5.23	4.34	8.65	62.78
Maryland and Delaware	5.04	2.35	5.78	2.21	5.29	3.81	3.03	2.50	2.20	6.39	5.25	3.30	47.15
Michigan	3.03	1.71	1.63	1.51	4.00	2.38	3.94	3.60	2.32	4.70	1.69	2.62	33.13
Minnesota	1.08	.68	.84	1.94	3.13	2.73	2.90	3.38	1.05	1.51	1.88	.56	21.68
Mississippi	10.47	6.19	4.29	3.32	3.71	3.43	5.40	3.97	6.65	6.32	3.66	10.30	67.71
Missouri	3.32	1.41	1.89	2.57	1.91	4.95	3.63	5.98	2.36	3.45	1.82	4.46	37.75
Montana	.64	.60	1.40	1.74	1.67	3.07	1.35	1.83	.32	1.50	1.09	.96	16.17
Nebraska	1.21	.69	.80	2.00	2.84	4.25	2.80	3.09	1.40	1.29	.15	.46	20.98
Nevada	1.32	1.33	.52	.99	1.12	1.00	.43	.29	.25	.18	.14	.72	8.29
New Jersey	4.50	2.16	5.49	2.71	2.98	3.68	2.76	2.75	2.29	5.85	7.81	3.08	46.06
New Mexico	.88	.89	.73	.68	1.58	1.56	2.59	2.68	2.57	1.02	.01	1.01	16.20
New York	4.28	2.27	4.01	2.42	2.67	3.23	4.65	3.88	1.79	6.04	4.95	2.00	42.19
North Carolina	4.73	3.10	4.55	2.33	3.81	4.74	2.81	3.87	3.37	7.46	5.17	6.44	52.38
North Dakota	.55	.35	.63	2.16	2.14	3.83	2.01	1.82	.64	2.31	.49	.18	17.11
Ohio	5.28	1.27	2.92	2.29	1.78	3.79	4.29	2.06	2.80	3.47	3.09	3.58	36.62
Oklahoma	4.66	1.96	.99	2.33	2.18	7.50	2.64	2.72	1.51	2.09	.43	4.98	33.99
Oregon	3.94	1.83	4.75	2.65	2.13	.49	.33	.22	.09	1.87	4.21	4.18	26.69
Pennsylvania	4.51	1.64	4.41	1.71	3.69	3.15	3.39	2.82	1.45	5.31	4.75	2.19	39.02
South Carolina	4.93	3.74	3.67	2.05	3.35	6.30	3.74	5.31	3.22	6.99	4.45	6.33	54.08
South Dakota	.79	.30	1.01	2.76	3.33	3.77	1.85	2.52	1.10	1.18	.21	.34	19.16
Tennessee	8.32	6.07	4.89	5.04	2.14	4.31	4.80	3.80	4.51	5.39	3.20	7.04	59.51
Texas	4.71	3.20	1.44	2.50	2.90	3.05	2.42	3.39	5.19	.93	.83	3.50	34.06
Utah	1.33	1.78	1.31	1.49	.68	1.01	1.42	1.88	.23	.62	.36	1.25	13.36
Virginia	4.65	2.80	5.18	2.44	3.92	3.63	2.86	1.94	2.01	7.01	4.33	4.09	44.86
Washington	5.24	5.62	6.57	3.48	1.52	.59	1.52	.88	.62	3.55	8.45	6.09	44.13
West Virginia	4.82	3.22	5.32	2.21	3.11	4.46	6.02	3.04	1.58	3.91	3.34	2.83	43.86
Wisconsin	1.93	1.33	1.12	1.49	3.07	2.94	2.96	3.55	1.36	1.99	1.86	1.77	25.37
Wyoming	.90	.59	1.23	2.02	1.77	1.97	.98	.90	.39	1.24	.53	.79	13.31
New England [1]	4.61	2.19	4.08	2.53	1.96	2.46	3.92	4.34	5.42	4.95	5.38	1.78	43.62

[1] Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut.

Weather Bureau.

TABLE 496.—*Monthly and annual rainfall by States, 1933*

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
	In.	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*
Alabama	3.17	6.21	6.88	6.50	2.41	3.04	7.38	3.99	2.30	1.95	1.14	3.22	48.19
Arizona	1.98	.67	.01	.81	.19	.48	1.87	1.56	1.55	1.25	.96	.25	11.58
Arkansas	3.66	3.53	4.87	4.80	6.27	1.30	5.01	4.42	5.10	2.85	1.88	5.41	49.10
California	6.42	.83	2.65	.62	1.61	.22	.04	.07	.14	1.52	.11	5.95	20.18
Colorado	.53	.48	.91	2.49	1.92	.91	1.82	2.23	1.87	.29	.54	1.17	15.16
Florida	2.31	3.24	3.72	7.13	2.59	5.23	10.19	6.72	7.69	4.83	1.62	.60	55.87
Georgia	3.59	5.87	3.49	4.09	2.76	2.96	5.95	4.19	4.15	2.11	.96	1.79	41.91
Idaho	2.63	1.77	1.14	.84	1.65	.99	.17	.38	.92	1.67	.73	4.39	17.28
Illinois	2.64	1.47	4.12	3.55	8.02	1.48	2.54	2.62	3.72	2.77	.65	1.46	35.04
Indiana	3.17	1.88	5.41	4.52	8.14	1.16	2.56	2.79	4.94	2.77	1.13	2.26	40.73
Iowa	.95	.32	3.09	1.21	4.36	1.64	3.45	3.01	4.16	1.36	.31	1.05	24.91
Kansas	.25	.26	1.47	2.42	3.80	.87	2.80	5.21	2.25	.86	.72	1.27	22.18
Kentucky	5.18	4.25	5.52	4.74	6.43	1.57	6.05	3.30	5.03	2.05	1.54	4.99	50.65
Louisiana	3.41	6.33	5.83	7.00	4.65	1.94	11.55	4.17	1.74	1.42	1.93	4.98	54.95
Maryland and Delaware	3.18	3.01	4.28	5.44	5.42	2.73	5.36	10.29	3.21	1.95	1.41	3.00	49.28
Michigan	1.29	1.88	1.83	3.31	4.05	2.31	1.98	1.74	3.56	4.31	2.11	1.87	30.24
Minnesota	1.03	.67	1.33	1.59	3.78	2.04	2.53	1.66	3.07	1.44	.85	1.08	21.07
Mississippi	3.10	6.59	6.75	7.82	4.07	1.79	7.36	3.65	1.90	1.57	1.44	4.29	50.33
Missouri	2.43	1.35	3.53	3.53	7.53	1.72	2.49	3.91	4.38	2.68	.84	1.82	36.21
Montana	.90	.67	.52	1.50	2.41	1.58	.49	2.52	.85	1.49	.71	2.05	15.69
Nebraska	.20	.22	2.06	2.86	2.97	1.03	2.94	3.90	2.38	.06	.32	1.17	20.11
Nevada	1.76	.40	.43	.59	.91	.06	.34	.19	.14	.59	.20	1.06	6.67
New Jersey	2.39	3.33	4.94	4.84	4.84	2.79	3.73	10.53	6.07	2.04	1.01	3.19	49.70
New Mexico	.46	.60	.16	.40	.68	2.14	2.28	3.06	1.29	.86	.65	.26	12.84
New York	1.59	2.34	3.78	3.97	3.40	2.12	2.14	6.42	4.02	2.51	2.37	2.87	37.53
North Carolina	2.88	4.28	2.70	4.01	4.58	2.44	5.52	5.75	2.96	1.36	1.07	1.73	39.28
North Dakota	.80	.28	.45	1.33	3.15	1.75	2.00	.73	.79	.53	.65	.88	13.34
Ohio	1.93	1.81	5.54	3.74	6.44	1.78	2.47	3.43	4.65	1.36	1.49	2.75	37.39
Oklahoma	1.08	1.29	2.38	3.05	4.70	.42	3.18	5.28	3.48	2.51	1.60	1.59	30.56
Oregon	4.83	3.06	3.09	1.13	2.78	1.43	.13	.41	1.71	2.11	1.07	6.41	28.16
Pennsylvania	2.00	2.30	5.33	4.49	5.86	2.58	4.26	7.61	4.66	1.91	1.55	2.88	45.43
South Carolina	2.64	4.86	1.96	2.31	3.19	2.74	5.15	4.71	4.06	1.71	1.23	1.39	35.95
South Dakota	.25	.32	1.62	1.67	3.15	1.48	2.34	2.35	1.21	.12	.24	.56	15.31
Tennessee	3.46	6.21	5.65	4.17	7.15	1.79	6.01	4.62	3.55	1.24	1.95	5.41	51.21
Texas	1.80	2.16	1.89	1.36	3.95	.77	4.15	3.06	2.57	1.24	1.13	1.88	25.96
Utah	1.60	.64	.82	1.29	1.92	.06	1.01	.52	.55	.45	.56	1.15	10.57
Virginia	3.38	3.03	3.12	4.44	5.30	2.11	5.44	5.78	1.81	1.30	1.15	2.54	39.40
Washington	6.44	3.41	4.73	.98	2.72	1.42	.50	.86	3.42	4.60	3.91	14.49	47.48
West Virginia	3.74	3.13	5.92	4.08	6.99	2.75	5.21	5.38	3.71	1.67	1.98	4.10	48.66
Wisconsin	1.22	1.10	2.04	2.73	5.02	2.62	3.00	1.58	3.30	2.44	.83	1.23	27.11
Wyoming	.70	.63	.95	2.29	2.54	.56	.64	1.78	.89	.16	.41	.61	12.16
New England [1]	2.38	3.22	4.79	5.81	2.42	2.24	2.91	5.22	6.43	4.00	1.78	3.50	44.70

[1] Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut.

Weather Bureau.

TABLE 497.—*Fires on national forests, 1924–32*

Year	Fires	Area burned [1]	Damage		Cost of fighting fire [3]
			Timber destroyed	Value, all items [2]	
	Number	*Thousand acres*	*M ft.b.m.*	*Dollars*	*Dollars*
1924	8,247	826	677,925	1,892,605	1,715,706
1925	8,263	349	342,554	968,892	947,773
1926	7,095	956	1,329,573	5,716,660	2,298,358
1927	5,693	224	84,396	375,338	710,212
1928	6,921	499	234,460	1,395,018	1,309,872
1929	7,449	978	1,427,551	5,831,838	3,400,403
1930	8,388	206	65,951	493,229	1,303,099
1931	8,466	640	989,631	4,409,309	4,271,294
1932	5,612	422	57,805	685,943	1,107,931

[1] Government and private land inside national-forest boundaries.
[2] Includes the reported value of timber destroyed, forage, and buildings.
[3] Includes the cost of emergency patrol, tools, and supplies.

Forest Service.

TABLE 498.—*National forest areas, by regions, June 30, 1933*

Region	Name	Region headquarters	Gross area	Alienated lands	Net area
			Acres	*Acres*	*Acres*
1	Northern region	Missoula, Mont	26, 528, 978	3, 795, 564	22, 733, 414
2	Rocky Mountain region	Denver, Colo	21, 039, 426	1, 810, 709	19, 228, 717
3	Southwestern region	Albuquerque, N.Mex	22, 001, 759	2, 105, 700	19, 896, 059
4	Intermountain region	Ogden, Utah	30, 532, 477	1, 346, 768	29, 185, 709
5	California region	San Francisco, Calif	24, 212, 897	4, 862, 686	19, 350, 211
6	North Pacific region	Portland, Oreg	26, 923, 992	3, 827, 898	23, 096, 094
7	Eastern region	Washington, D.C	10, 405, 444	5, 201, 239	5, 204, 205
8	Alaska region	Juneau, Alaska	21, 396, 951	54, 477	21, 342, 474
9	North Central region	Milwaukee, Wis	3, 795, 575	1, 823, 313	1, 972, 262
	Total		186, 837, 499	24, 828, 354	162, 009, 145

Headquarters of national-forest areas:
Region 1, Federal Building, Missoula, Mont.; embracing Montana, northeastern Washington, northern Idaho, and northwestern South Dakota.
Region 2, Federal Building, Denver, Colo.; embracing Colorado, eastern Wyoming, South Dakota, Nebraska, and western Oklahoma.
Region 3, Gas and Electric Building, Albuquerque, N.Mex.; embracing Arizona and New Mexico.
Region 4, Forest Service Building, Ogden, Utah; embracing Utah, southern Idaho, western Wyoming, Nevada, and northwestern Arizona.
Region 5, Ferry Building, San Francisco, Calif.; embracing California and southwestern Nevada.
Region 6, Post Office Building, Portland, Oreg.; embracing Washington and Oregon.
Region 7, Victor Building, Washington, D.C.; embracing Alabama, Arkansas, Florida, Georgia, Louisiana, Maine, New Hampshire, North Carolina, Pennsylvania, Puerto Rico, South Carolina, Tennessee, Vermont, Virginia, and West Virginia.
Region 8, Federal Building, Juneau, Alaska; located in Alaska.
Region 9, Federal Building, Milwaukee, Wis.; embracing Illinois, Michigan, Minnesota, and Wisconsin.
Forest Service.
See 1931 Yearbook, table 554, p. 1041, for lists of National Monuments, National Game Refuges, and Range Reserves.

TABLE 499.—*Saw-timber area, stand, growth, and depletion in the United States*

Region	Area	Stand [1]	Annual growth [2]	Annual depletion: Cut [3]	Annual depletion: Destroyed by fire [4]	Annual depletion: Other destruction [5]	Annual depletion: Total
	Thousand acres	*Million ft. b.m.*	*Million ft. b.m.*	*Million ft. b.m.*	*Million ft. b.m.*	*Million ft. b.m.*	*Million ft. b.m.*
New England	13, 860	57, 875	764	1, 648	2	255	1, 905
Middle Atlantic [6]	7, 294	26, 150	575	1, 061	7	14	1, 082
Lake	5, 095	35, 887	116	2, 709	4	35	2, 748
Central [7]	21, 224	34, 622	727	5, 454	12	59	5, 525
South [8]	57, 265	199, 297	6, 799	25, 233	395	711	26, 339
Eastern regions	104, 738	353, 831	8, 981	36, 105	420	1, 074	37, 599
Pacific Coast	44, 140	1, 041, 628	1, 785	16, 487	564	1, 749	18, 800
North Rocky Mountain [9]	17, 026	146, 388	576	1, 510	393	474	2, 377
South Rocky Mountain [10]	22, 741	125, 956	389	540	13	105	658
Western regions	83, 907	1, 313, 972	2, 750	18, 537	970	2, 328	21, 835
Total	188, 645	1, 667, 803	11, 731	54, 642	1, 390	3, 402	59, 434

1 Standing timber of all species of size suitable for lumber according to the local practice in each region, as of 1930.
2 Current annual growth of timber of saw-timber size.
3 Cut for lumber and other commodities, averaged for the period 1925–29.
4 Saw timber destroyed, averaged for the period 1925–29.
5 Destruction due to insects, disease, windfall, etc., averaged for the period 1919–29.
6 Includes New York, Pennsylvania, New Jersey, Delaware, and Maryland.
7 Includes Ohio, Indiana, Illinois, Iowa, Kansas, Missouri, Nebraska, Tennessee, Kentucky, and West Virginia.
8 Includes the coastwise States, Virginia to Texas, inclusive; also Arkansas and Oklahoma.
9 Includes Idaho and Montana.
10 Includes the other Rocky Mountain States and South Dakota (Black Hills).

Forest Service; from a National Plan for American Forestry, 1933.

TABLE 500.—*Production of lumber, by States, 1929, 1931, and 1932*

State	1929	1931	1932	State	1929	1931	1932
	M ft. b.m.	*M ft. b.m.*	*M ft. b.m.*		*M ft. b.m.*	*M ft. b.m.*	*M ft. b.m.*
Alabama	2,058,964	732,020	544,008	New Jersey	15,576	7,341	4,566
Arizona	174,594	85,085	58,162	New Mexico	148,287	58,787	71,715
Arkansas	1,348,318	507,715	276,586	New York	159,591	74,052	38,847
California	[1] 2,063,229	957,740	[1] 680,520	North Carolina	1,202,377	500,802	382,852
Colorado	71,535	48,413	39,163	Ohio	175,537	52,707	31,972
Connecticut	30,157	12,891	5,491	Oklahoma	199,744	76,978	64,616
Delaware	9,641	3,529	3,961	Oregon	4,784,009	2,628,035	1,603,892
Florida	1,136,897	576,626	320,408	Pennsylvania	314,250	123,027	72,929
Georgia	1,386,250	459,617	263,656	Rhode Island	6,514	2,950	2,892
Idaho	1,028,791	499,899	248,378	South Carolina	1,067,987	450,367	353,913
Illinois	37,681	18,446	8,132	South Dakota	61,126	26,840	17,370
Indiana	169,970	52,823	26,853	Tennessee	763,828	263,452	128,393
Kentucky	339,146	111,354	51,338	Texas	1,451,640	555,814	405,244
Louisiana	2,232,360	949,232	567,026	Utah	5,301	5,794	4,913
Maine	257,910	151,830	101,993	Vermont	119,622	60,609	39,827
Maryland	54,870	29,088	17,932	Virginia	708,452	311,370	226,785
Massachusetts	71,863	42,807	38,702	Washington	7,302,063	3,907,997	2,260,689
Michigan	571,017	256,663	111,090	West Virginia	632,992	246,991	135,283
Minnesota	357,180	94,968	58,082	Wisconsin	842,814	360,041	120,347
Mississippi	2,669,496	863,221	531,397	Wyoming	25,629	16,629	20,892
Missouri	228,078	74,916	35,252	All other	[2] 20,332	[2] 10,509	[2] 3,433
Montana	388,711	158,213	111,048				
New Hampshire	191,703	94,455	60,684	Total	[3] 36,886,032	[3] 16,522,643	[3] 10,151,232

[1] Includes the cut of Nevada.
[2] Includes the cut of Iowa, Kansas, and Nebraska.
[3] Mills cutting less than 50,000 feet each year excluded.

Forest Service, with cooperation of Bureau of the Census.

TABLE 501.—*Stumpage: Prices per 1,000 feet, 1932*

SOFTWOODS

State	Pine			Douglas fir	Firs (true) [3]	Spruces [4]	Hemlock [5]	Cypress	Cedars [6]
	White [1]	Southern yellow [2]	Western yellow						
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Alabama		2.05							8.40
Arizona			2.42						
Arkansas		1.96						6.00	
California	2.38		2.58	1.30	1.18	1.00			
Colorado			3.23	3.00	2.00	2.60			
Connecticut	13.00								
Delaware		4.75							
Florida		5.29						6.17	
Georgia		2.80						4.19	
Idaho	6.42		2.39	.81					1.61
Louisiana		4.22						4.96	
Maine	6.35				6.00	7.84	2.96		6.00
Maryland		5.25					7.00		
Massachusetts	9.24					3.00			
Michigan	6.18				1.56	4.06	1.57		2.05
Minnesota	1.11				1.00				
Mississippi		7.44						4.00	
Missouri		1.12							
Montana	5.00		2.34	1.64					
Nebraska			2.00						
New Hampshire	3.68					3.00	3.12		
New Mexico			2.33						
New York	3.15					5.00	3.46		
North Carolina	2.00	3.63						1.50	5.00
Oklahoma		1.68							
Oregon	2.55		2.06	1.16	.89	1.15	.94		4.92
Pennsylvania	12.00						6.57		
Rhode Island	5.00								
South Carolina		2.19							
South Dakota			4.22						
Tennessee								2.50	
Texas		2.15							
Utah			2.50	2.50		1.50			
Vermont						6.00			
Virginia		2.51							
Washington	13.28		2.15	2.90	.43	2.72	1.06		3.34
West Virginia	3.00								
Wisconsin	8.00						4.00		
Wyoming			2.25	2.50		2.50			

[1] Northern white pine in States east of the Great Plains. Western white pine in Idaho, Montana, and Washington. Sugar pine in Oregon and California.
[2] Includes all sales of southern pines.
[3] Balsam fir in Eastern States. White fir in Western States.
[4] Red, black, and white spruce in Eastern States; Sitka spruce in California, Oregon, and Washington; Engelmann spruce in Colorado, Utah, and Wyoming.
[5] Eastern and western hemlock for Eastern and Western States, respectively.
[6] Northern white cedar in Maine and Michigan; Port Orford cedar in Oregon; eastern red cedar in Alabama· and North Carolina· western red in other States.

TABLE 501.—*Stumpage: Prices per 1,000 feet, 1932*—Continued

HARDWOODS

State	Oaks	Maple	Elm	Gums	Cottonwood [7]	Yellow poplar	Birch	Basswood	Chestnut	Beech
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Alabama	2.48		4.00	4.00		2.50				
Arkansas	3.97			5.26						
California	3.00									
Connecticut	4.60	4.38					5.00	5.00	3.50	2.80
Delaware	10.00									
Georgia	3.79			2.00						
Illinois	15.00									
Indiana	8.78	12.39	5.03	4.38		9.85		10.00		4.69
Kentucky	2.27					2.60				
Louisiana	4.82	3.00		2.40						2.00
Maine							10.00			
Maryland	3.62	4.78		2.00		3.00			2.50	
Massachusetts	6.84	5.00								
Michigan	6.68	6.51	7.61		1.67		7.24	7.22		2.92
Minnesota					1.00					
Mississippi	4.18	3.00	3.00	2.59						
Missouri	2.34									
New Hampshire	4.00						2.00			
New Jersey	10.00									
New York	7.95	6.04					4.00	8.00		3.16
North Carolina	3.46	3.00		2.00		3.54			1.80	
Ohio	8.09	4.13	7.46	2.20		3.29		8.25	4.60	3.45
Oklahoma	2.50									
Oregon		2.50								
Pennsylvania	7.28	4.76	3.00				6.56	12.50	3.01	4.00
Rhode Island	4.59									
South Carolina	3.00			2.00						
Tennessee	4.50	3.00							4.00	2.00
Texas				5.00						
Vermont		4.41					4.93			2.00
Virginia	3.39					2.51				
Washington	10.00				2.71					
West Virginia	7.24								2.00	
Wisconsin	7.50	7.50			.75			4.00		

[7] Includes aspen.

Forest Service, with cooperation by Bureau of the Census.

TABLE 502.—*Logs: Prices per 1,000 feet, log scale, f.o.b. manufacturing plant, 1932*

SOFTWOODS

State	Pine			Douglas fir	Firs (true) [3]	Spruces [4]	Hemlock [5]	Cypress	Cedars [6]
	White [1]	Southern yellow [2]	Western yellow						
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Alabama		8.45						11.54	25.00
Arkansas		6.55						10.75	
California			11.27	16.17	8.00	13.02	10.00		
Colorado			9.00	8.00		10.00			
Florida		9.20						15.17	35.00
Georgia		10.18						15.42	
Idaho	15.33		8.86	8.09	7.50		6.50		6.69
Louisiana		8.23						13.37	
Maine	16.49				20.96	16.45	12.49		17.61
Massachusetts	10.52					37.50	10.14		
Michigan	15.41				13.00	14.32	8.29		12.93
Minnesota	14.89				8.61	13.08			12.00
Mississippi		7.49						11.52	
Missouri		7.62						7.96	
Montana			10.64	8.30					
New Hampshire	13.67				12.00	11.15	10.38		
New Mexico			15.87						
New York	14.23					15.21	12.91		
North Carolina		8.24						10.06	20.00
Oklahoma		4.10							
Oregon	8.00		9.30	8.61	6.59	10.49	7.53		8.14
Pennsylvania	17.38						4.60		
South Carolina		8.38						8.03	
South Dakota			17.00						
Tennessee	12.24							10.00	24.36
Texas		11.02							
Utah			8.15						
Vermont	14.83				11.68	12.15	10.84		
Virginia		8.86							15.00
Washington	14.40		9.18	9.87	6.52	11.16	7.89		9.59
Wisconsin	13.81						14.06		

See footnotes at end of table

TABLE 502.—*Logs: Prices per 1,000 feet, log scale, f.o.b. manufacturing plant, 1932*—Continued

HARDWOODS

State	Oaks	Maple	Elm	Gums	Cottonwood [7]	Yellow poplar	Birch	Basswood	Chestnut	Beech
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Alabama	14.53			11.34	14.00	15.26				12.00
Arkansas	12.64	10.25	9.01	12.30	9.44					10.00
Delaware				20.14						
Florida	12.76	15.91	16.54	14.84		16.56		15.00		11.00
Georgia	12.90	10.81	9.00	10.56	11.34	12.14				
Illinois	11.36	9.00			8.62					
Indiana	22.90	19.94	15.08	12.50	15.00	15.26		19.09	15.00	12.27
Kentucky	11.83					15.28			7.00	7.00
Louisiana	11.07	10.00	8.84	11.92	5.00	10.00				9.77
Maine	18.19	8.51	18.00				19.74	19.53		
Maryland	10.00								8.00	
Massachusetts	14.25	48.00					12.00	11.00	9.00	8.00
Michigan	17.15	17.80	17.00		12.50		18.53	17.92		12.74
Minnesota					7.85					
Mississippi	12.90	10.94	7.00	10.02	9.52	12.36		12.64		8.00
Missouri	10.17		14.91	7.50						
Montana					4.00					
New Hampshire	14.50	17.74					31.28	15.25		
New Jersey	27.00									
New York	25.08	21.28	24.31				17.61	18.67	15.00	13.34
North Carolina	17.44	9.38		7.89		13.90				8.00
Ohio	15.52	18.88	16.43	5.00		15.50	19.01	27.39	8.77	11.10
Oklahoma	8.13									
Oregon	20.00	14.17			5.73					
Pennsylvania	15.54	19.33	6.00			25.00	10.00	23.27	10.91	15.02
South Carolina	11.50	8.78	12.54	15.17	11.00	10.31				
Tennessee	16.10			9.40	8.00	22.86		9.00	8.54	5.09
Texas	8.11				13.43					
Vermont	15.90	15.16	12.58		11.33		16.18	16.32		11.31
Virginia	13.14	14.00	14.00	15.96		19.40				
Washington	40.00	11.81			8.59		15.48			
West Virginia	44.99	22.21		15.91						19.20
Wisconsin	19.36	19.92	23.85		4.00		28.68	16.90		

[1] Western white pine in Idaho and Washington; sugar pine in Oregon; northern white pine in other States.
[2] Includes all sales of southern pines.
[3] White fir in California, Idaho, Oregon, and Washington; balsam fir in other States.
[4] Engelmann spruce in Colorado; Sitka spruce in California, Oregon, and Washington; eastern spruce in other States.
[5] Eastern and western hemlock for Eastern and Western States respectively.
[6] Western red cedar in Idaho, Oregon, and Washington; northern white cedar in Maine, Michigan, and Minnesota; eastern red cedar in other States.
[7] Includes aspen.

Forest Service, with cooperation of Bureau of the Census.

TABLE 503.—*Average value of lumber at the mill per 1,000 feet board measure, in stated years*

Kind of wood	1899	1909	1919	1927	1929	1930	1931	1932
Softwoods:	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Balsam fir	(1)	13.99	32.23	25.92	25.40	26.72	19.34	19.32
Cedar	10.91	19.95	33.80	34.39	34.83	31.14	24.08	24.55
Cypress	13.32	20.46	38.38	39.91	35.29	33.10	30.14	24.62
Douglas fir	8.67	12.44	24.62	19.45	20.05	16.91	12.05	10.63
Hemlock	9.98	13.95	29.16	19.06	18.90	17.04	14.13	12.39
Larch (tamarack)	8.73	12.68	23.39	17.69	18.35	17.18	14.18	10.76
Lodgepole pine	(1)	16.25	29.98	20.82	17.97	17.64	14.46	12.45
Redwood	10.12	14.80	30.04	33.81	31.00	30.33	29.82	24.33
Spruce	11.27	16.91	30.76	26.59	28.64	23.66	23.00	17.73
Sugar pine	12.30	18.14	35.99	43.22	43.08	38.10	28.76	26.26
Ponderosa pine	9.70	15.39	27.75	26.04	26.47	23.52	20.48	16.88
White fir	(1)	13.10	25.66	19.92	20.63	17.57	14.94	12.23
White pine	12.69	18.16	32.83	29.90	29.87	27.81	24.71	21.58
Yellow pine	8.46	12.69	28.71	23.77	25.66	21.06	16.99	13.32
Hardwoods:								
Ash	15.84	24.44	52.69	43.82	43.14	39.72	41.06	28.74
Basswood	12.84	19.50	40.03	89.84	39.88	35.51	28.54	23.81
Beech	(1)	13.25	29.98	27.21	28.39	25.89	22.93	17.97
Birch	12.50	16.95	35.79	41.03	39.35	36.39	30.95	26.26
Chestnut	13.37	16.12	32.30	29.35	29.51	23.91	22.50	17.87
Cottonwood	10.37	18.05	32.24	30.92	29.70	22.73	19.54	16.49
Elm	11.47	17.52	36.39	36.22	35.28	30.20	25.37	19.07
Gum, red and sap	9.63	13.20	32.68	32.81	34.42	27.67	22.68	16.84
Hickory	18.78	30.80	44.37	37.08	40.33	33.00	32.65	29.85
Maple	11.83	15.77	35.56	35.35	36.93	34.54	28.80	22.82
Oak	13.78	20.50	37.87	35.72	38.43	29.29	27.68	22.84
Sycamore	11.04	14.87	30.32	29.31	30.07	26.54	22.40	18.71
Tupelo	(1)	11.87	28.42	24.45	25.39	23.47	19.05	17.40
Walnut	36.49	43.79	72.13	111.64	119.15	100.75	90.44	57.87
Yellow poplar	14.03	25.39	41.65	38.58	40.66	35.19	30.02	26.02
All kinds	11.13	15.38	30.21	25.80	26.94	22.81	18.56	15.12

[1] No data available.

Forest Service, with cooperation of Bureau of the Census.

TABLE 504.—*Pulpwood consumption, wood-pulp and paper production by States, 1929–32*

State	Pulpwood consumption				Wood-pulp production				Paper production			
	1929	1930	1931	1932	1929	1930	1931	1932	1929	1930	1931	1932
	1,000 cords	*1,000 cords*	*1,000 cords*	*1,000 cords*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*
California	(1)	(1)	------	------	(1)	(1)	------	------	254	231	192	139
Louisiana	460	423	431	449	247	244	261	289	274	278	295	324
Maine	1,312	1,203	1,112	949	981	905	889	765	1,061	1,029	956	830
Massachusetts	45	43	33	20	29	29	24	14	562	491	406	328
Michigan	313	280	251	216	178	193	150	153	1,092	991	903	734
Minnesota	266	230	198	211	190	182	148	134	318	279	241	208
New Hampshire	376	243	151	(2)	213	138	90	(2)	196	158	130	117
New York	826	763	583	438	663	596	467	354	1,513	1,348	1,160	912
North Carolina	(2)	(2)	264	(2)	(2)	(2)	123	(2)	70	65	61	(2)
Ohio	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	937	860	789	612
Oregon	[3] 341	[3] 351	320	265	[3] 257	[3] 249	238	187	223	129	200	183
Pennsylvania	398	353	293	238	213	189	160	130	749	666	608	545
Tennessee	(2)	75	95	(2)	(2)	53	68	(2)	84	97	95	82
Vermont	25	24	25	(2)	26	25	26	(2)	73	69	66	60
Virginia	375	378	368	338	206	216	223	208	242	262	275	253
Washington	956	1,000	1,026	688	524	566	580	421	382	395	375	343
West Virginia	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	52	35	44	37
Wisconsin	1,234	1,169	957	797	734	701	586	476	886	835	727	633
All other States	718	661	616	1,024	402	344	376	629	2,172	1,951	1,859	1,658
Total	7,645	7,196	6,723	5,633	4,863	4,630	4,409	3,760	11,140	10,169	9,382	7,998

1 Included with Oregon.
2 Included in "All other States."
3 Includes California.

Forest Service, with cooperation of Bureau of the Census.

TABLE 505.—*Pulpwood consumption, wood-pulp and paper production of the United States, 1899, 1904–11, 1914, and 1916–32*

Year	Pulpwood consumption	Wood-pulp production	Paper production	Year	Pulpwood consumption	Wood-pulp production	Paper production
	Cords	*Short tons*	*Short tons*		*Cords*	*Short tons*	*Short tons*
1899	1,986,310	1,179,525	2,167,593	1920	6,114,072	3,821,704	7,334,614
1904	------------	1,921,768	3,106,696	1921	4,557,179	2,875,601	5,356,317
1905	3,192,123	------------	------------	1922	5,548,842	3,521,644	7,017,800
1906	3,661,176	------------	------------	1923	5,872,870	3,788,672	8,029,482
1907	3,962,660	2,547,879	------------	1924	5,768,082	3,723,266	------------
1908	3,346,953	2,118,947	------------	1925	6,093,821	3,962,217	9,182,204
1909	4,001,607	2,495,523	4,216,708	1926	6,766,007	4,394,766	------------
1910	4,094,306	2,533,976	------------	1927	6,750,935	4,313,403	10,002,070
1911	4,328,052	2,686,134	------------	1928	7,160,100	4,510,800	10,403,338
1914	4,470,763	2,893,150	5,270,047	1929	7,645,011	4,862,885	11,140,235
1916	5,228,558	3,435,001	------------	1930	7,195,524	4,630,308	10,169,140
1917	5,480,075	3,509,939	5,919,647	1931	6,722,766	4,409,344	9,381,850
1918	5,250,794	3,313,861	6,051,523	1932	5,633,123	3,760,267	7,997,872
1919	5,477,832	3,517,952	6,190,361				

Bureau of the Census in cooperation with the Forest Service and Federal Trade Commission.

TABLE 506.—*Pulpwood consumption, by kinds, 1909, 1919, and 1929–32*

Kinds of wood	1909	1919	1929	1930	1931	1932 [1]
	Cords	*Cords*	*Cords*	*Cords*	*Cords*	*Cords*
Spruce:						
Domestic	1,653,249	2,313,419	2,074,267	1,844,937	1,651,051	1,423,836
Imported	768,332	873,795	1,029,913	888,255	676,339	608,171
Hemlock:						
Domestic	559,657	795,154	1,309,170	[2] 1,222,961	[2] 1,191,048	[2] 806,230
Imported			15,379			
Pine:						
Southern yellow pine	(3)	234,463	1,036,272	1,030,273	1,294,503	1,279,832
Jack pine	(3)	51,581	[2] 205,760	200,970	[2] 159,273	[2] 154,214
Miscellaneous pines	90,885	7,566				
Poplar:						
Domestic	302,876	180,160	329,466	291,897	266,603	192,461
Imported	25,622	158,220	157,829	159,092	94,238	85,693
Balsam fir:						
Domestic	95,366	181,840	317,552	330,548	338,790	243,224
Imported		106,974	45,412	48,935	55,601	47,835
Yellow poplar		72,605	129,697	107,795	73,504	74,151
White fir	37,176	31,138	111,054	90,652	109,277	70,968
Beech, birch, and maple	31,390	[4] 183,426	76,950	68,848	69,681	65,958
Gum		30,355	39,685	41,825	22,440	17,553
Tamarack (larch)		44,042	51,835	40,054	35,433	15,652
Other woods	188,077	38,013	153,485	232,980	126,942	[2] 105,868
Slabs and mill waste	248,977	175,081	561,285	595,502	558,043	441,447
Total	4,001,607	5,477,832	7,645,011	7,195,524	6,722,766	5,635,133

[1] Preliminary.
[2] Includes a small quantity of imported wood.
[3] Included in "Miscellaneous pines."
[4] Includes chestnut.

Forest Service, with cooperation of Bureau of the Census.

TABLE 507.—*Paper: Consumption by kinds, and apparent per-capita consumption, specified years, beginning 1810* [1]

Year	Newsprint	Book	Boards	Wrapping	Fine	All other	All kinds	Apparent per capita
	1,000 short tons	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*Pounds*
1810							[2] 3	1
1819							[2] 12	2
1839							[2] 38	4
1849							[2] 78	7
1859							[2] 127	8
1869							391	20
1879							457	18
1889							1,121	36
1899	569	314	394	535	113	233	2,158	57
1904	883	495	521	644	142	365	3,050	74
1909	1,159	689	883	763	193	537	4,224	93
1914	1,576	926	1,292	892	244	566	5,496	112
1917	1,824	846	1,805	814	276	691	6,256	122
1918	1,760	800	1,927	859	348	693	6,387	123
1919	1,892	838	1,940	825	306	692	6,493	124
1920	2,196	1,060	2,301	1,003	371	930	7,861	148
1921	2,002	707	1,641	770	230	704	6,054	112
1922	2,451	968	2,154	1,059	356	1,015	8,003	146
1923	2,814	1,235	2,802	1,177	374	938	9,340	167
1925 [3]	3,073	1,365	3,290	1,287	472	1,013	10,590	184
1926	3,517	1,408	3,637	1,435	495	1,315	11,807	203
1927	3,492	1,265	3,737	1,515	502	1,404	11,915	202
1928	3,561	1,321	4,009	1,457	538	1,562	12,448	208
1929	3,813	1,471	4,398	1,586	593	1,490	13,351	220
1930	3,496	1,370	4,014	1,556	564	1,251	12,251	199
1931	3,261	1,195	3,795	1,383	480	1,116	11,230	181
1932	2,831	935	3,297	1,233	418	885	9,599	154

[1] Imports added to United States production and domestic exports deducted.
[2] Domestic production only, value of exports and imports being approximately equal.
[3] Data for 1924 not available.

Forest Service; a computed table based on Bureau of the Census and Forest Service bulletins.

TABLE 508.—*Stock grazed on the national forests, and receipts, 1905–33*

Fiscal year	Cattle	Horses	Hogs	Sheep	Goats	Receipts for grazing by fiscal years
	Number	*Number*	*Number*	*Number*	*Number*	*Dollars*
1905	632, 793	59, 331		1, 709, 987		(1)
1906	1, 015, 148	(2)		5, 762, 200	(3)	513, 000
1907	1, 200, 158	(2)		6, 657, 083	(3)	857, 005
1908	1, 304, 142	76, 003	2, 076	6, 960, 919	126, 192	947, 365
1909	1, 491, 385	90, 019	4, 501	7, 679, 698	139, 896	[4] 1, 022, 516
1910	1, 409, 873	84, 552	3, 145	7, 558, 650	90, 300	969, 971
1911	1, 351, 922	91, 516	4, 500	7, 371, 747	77, 668	927, 967
1912	1, 403, 025	95, 343	4, 330	7, 467, 890	83, 849	[4] 961, 489
1913	1, 455, 922	97, 919	3, 277	7, 790, 953	76, 898	999, 369
1914	1, 517, 045	99, 835	3, 381	7, 560, 186	58, 616	1, 002, 348
1915	1, 627, 321	96, 933	2, 792	7, 232, 276	51, 409	1, 130, 495
1916	1, 758, 764	98, 903	2, 968	7, 843, 205	43, 268	1, 210, 215
1917	1, 953, 198	98, 880	2, 306	7, 586, 034	49, 939	1, 549, 795
1918	2, 137, 854	102, 156	3, 371	8, 454, 240	57, 968	1, 725, 822
1919	2, 135, 527	93, 251	5, 154	7, 935, 174	60, 789	2, 609, 170
1920	2, 033, 800	83, 015	4, 066	7, 271, 136	53, 685	2, 486, 040
1920 [5]	88, 599	6, 444	1, 010	553, 263	3, 346	
1921 [6]	1, 999, 680	78, 115	2, 453	6, 936, 377	43, 574	2, 132, 075
1922 [6]	1, 882, 491	67, 856	2, 149	6, 497, 912	36, 153	1, 315, 975
1923 [6]	1, 804, 274	64, 104	1, 347	6, 377, 759	31, 379	2, 341, 486
1924 [6]	1, 664, 087	58, 184	1, 560	3, 301, 308	29, 068	1, 915, 561
1925 [6]	1, 538, 942	57, 904	846	6, 162, 263	19, 795	1, 725, 377
1926 [6]	1, 456, 858	57, 396	1, 085	6, 212, 657	15, 666	1, 421, 589
1927 [6]	1, 403, 192	55, 629	997	6, 376, 838	18, 046	1, 530, 952
1928 [6]	1, 335, 903	51, 956	1, 206	6, 497, 081	17, 070	1, 713, 730
1929 [6]	1, 322, 465	48, 171	853	6, 650, 719	15, 487	1, 740, 290
1930 [6]	1, 321, 431	42, 357	540	6, 799, 236	13, 496	1, 942, 914
1931 [6]	1, 338, 373	37, 335	431	6, 593, 583	14, 645	1, 960, 642
1932 [6]	1, 361, 160	35, 105	528	6, 308, 500	12, 438	829, 960
1933						1, 498, 209

[1] No data available.
[2] Included with cattle.
[3] Included with sheep.
[4] Subject to revision.
[5] Last 6 months only.
[6] Calendar year.

Forest Service.

TABLE 509.—*Number of stock grazed in national forests, by States, calendar year 1932, and total grazing receipts, fiscal year 1933*

State	Cattle	Horses	Hogs	Sheep	Goats	Receipts from grazing [1]
	Number	*Number*	*Number*	*Number*	*Number*	*Dollars*
Alabama	20					10
Arizona	187, 841	1, 421	157	290, 072	1, 786	104, 833
Arkansas	3, 383	15	135	38		611
California	143, 249	4, 018	95	382, 178	924	146, 563
Colorado	281, 444	2, 470		992, 133	537	291, 399
Florida	1, 354		22	719		344
Idaho	120, 732	5, 214		1, 289, 137		192, 299
Montana	124, 343	6, 629		616, 577	97	121, 782
Nebraska	12, 960	461				9, 437
Nevada	50, 787	1, 819		309, 552		58, 793
New Hampshire	212	7				71
New Mexico	88, 669	2, 148	104	211, 156	9, 064	71, 919
North Carolina	761	1	8	104		412
Oklahoma	2, 312					2, 609
Oregon	83, 695	1, 521		643, 083	30	150, 633
Pennsylvania	52					5
South Dakota	28, 581	1, 028		34, 137		16, 417
Tennessee	345	1		63		336
Utah	111, 117	3, 402	7	749, 504		161, 463
Virginia	1, 005	6		396		706
Washington	13, 038	396		149, 393		37, 329
West Virginia	273	13		1, 118		634
Wyoming	104, 987	4, 535		639, 140		129, 084
Total	1, 361, 160	35, 105	528	6, 308, 500	12, 438	[2] 1, 498, 209

[1] Includes grazing trespass.
[2] Includes Georgia, $440; Maine, $5; South Carolina, $75.

Forest Service.

TABLE 510.—*Free-use timber, cut from national forests, by States, 1929–32*

State	1929		1930		1931		1932	
	Total quantity	Estimated users	Total quantity	Estimated users	Total quantity	Estimated users	Total quantity	Estimated users
	Mft.b.m.	*Number*	*Mft.b.m.*	*Number*	*Mft.b.m.*	*Number*	*Mft.b.m.*	*Number*
Alaska	533	502	510	503	74	7	58	4
Arizona	7,574	5,929	8,921	4,637	10,879	7,495	13,021	9,165
Arkansas	25	17	132	46	331	95	349	148
California	3,905	2,596	3,949	3,203	5,674	8,548	9,809	17,616
Colorado	7,436	2,674	9,326	3,120	10,894	4,138	15,428	4,879
Florida	---	---	---	---	45	55	204	93
Idaho	14,936	4,797	22,631	7,289	30,975	14,743	59,572	21,356
Michigan	475	61	918	131	981	254	3,173	533
Minnesota	167	56	183	40	219	110	704	230
Montana	10,426	6,144	16,800	11,961	17,375	9,281	28,696	17,224
Nebraska	---	---	---	---	53	32	42	24
Nevada	1,735	419	1,793	418	1,757	470	1,801	577
New Mexico	10,614	7,246	15,818	7,797	22,503	14,473	27,962	16,565
North Carolina	778	406	709	371	1,554	675	2,123	820
Oklahoma	60	65	65	70	118	114	128	178
Oregon	6,360	1,382	8,882	1,864	22,677	2,949	34,930	4,735
Pennsylvania	25	5	350	84	2,000	500	1,337	1,938
South Dakota	1,751	523	1,755	509	3,565	1,352	5,200	1,709
Tennessee	656	407	607	325	1,706	895	2,907	1,509
Utah	11,389	6,788	13,293	9,239	22,620	12,560	35,332	20,090
Virginia	316	187	491	287	436	306	872	1,155
Washington	727	237	1,142	316	2,741	721	15,366	2,623
West Virginia	31	10	---	---	81	33	347	80
Wisconsin	---	---	---	---	61	12	313	46
Wyoming	6,849	1,684	7,821	1,720	8,361	1,800	10,570	2,175
Total	86,768	42,135	116,096	53,930	167,680	81,618	270,244	125,472

Forest Service.

TABLE 511.—*Turpentine and rosin: Industrial consumption, United States, average 1926–30, annual 1931 and 1932*

Industry	Turpentine			Rosin		
	Average 1926–30	1931	1932	Average 1926–30	1931	1932
	Gallons	*Gallons*	*Gallons*	*500-lb. barrels*	*500-lb. barrels*	*500-lb. barrels*
Automobiles and wagons	172,655	87,072	33,245	1,894	591	773
Chemicals and pharmaceuticals	47,832	41,259	32,495	5,590	3,938	3,028
Foundries and foundry supplies	18,028	6,305	5,750	20,653	7,193	3,663
Linoleum	2,784	2,703	2,539	42,883	21,746	16,003
Matches	---	---	---	2,994	2,453	2,749
Miscellaneous	47,218	40,917	39,960	3,765	2,362	770
Oils and greases	77,480	54,224	29,324	53,445	29,565	21,899
Paper and paper size	4,553	2,349	1,666	337,263	299,934	261,000
Paint and varnish	4,431,268	3,444,882	2,280,214	234,036	155,592	121,240
Printing ink	12,640	14,562	22,635	14,380	15,164	10,225
Sealing wax, pitch, insulations, and plastics	67,857	42,353	36,262	38,378	13,902	11,559
Shipyards, car shops	40,317	46,258	34,188	834	74	108
Shoe polish	558,124	555,046	549,282	789	587	290
Soap	4,660	5,700	8,733	213,414	239,869	261,350
Total	5,485,416	4,343,630	3,076,293	970,318	792,970	714,657

Bureau of Chemistry and Soils.

TABLE 512.—*Turpentine and rosin: Stocks on hand and en route in the United States as of Mar. 31, average 1927–31, annual 1932 and 1933*

Location	Turpentine			Rosin		
	Average 1927–31	1932	1933	Average 1927–31	1932	1933
	Gallons	*Gallons*	*Gallons*	*500-lb. barrels*	*500-lb. barrels*	*500-lb. barrels*
Gum turpentine stills	[1] 575,410	495,522	(2)	[1] 94,628	128,503	(2)
Steam distillation plants	[3] 486,998	291,773	659,920	99,609	90,540	101,811
Destructive distillation plants	[4] 45,219	20,615	30,166			
Sulphate wood turpentine plants	[5] 9,957	12,248	40,302			
Southern primary ports	2,366,642	4,264,938	3,810,845	191,971	428,199	278,830
Eastern distributing points	346,596	285,109	366,532	8,512	9,550	15,275
Central distributing points	684,606	721,181	648,341	12,014	10,458	12,348
Western distributing points	113,465	95,593	117,217	2,396	1,621	1,260
Plants of industrial consumers	1,213,080	871,439	606,485	199,819	365,446	303,866
Total	5,841,973	7,058,418	[6] 6,279,808	608,949	1,034,317	[6] 713,390

[1] For 1928 and 1930; data not available for other years.
[2] Data not available.
[3] Compiled from Hercules Powder Co. reports.
[4] Data not available for 1928; average for 4-year period.
[5] For 1931 only; data not available for other years.
[6] Exclusive of quantities at gum turpentine stills.

Bureau of Chemistry and Soils; compiled from Department of Commerce reports.

TABLE 513.—*Turpentine and rosin: Exports and imports, United States, average 1926–27 to 1930–31, annual 1931–32 and 1932–33*

Item	Turpentine—Years beginning April			Rosin—Years beginning April		
	Average 1926–27 to 1930–31	1931–32	1932–33	Average 1926–27 to 1930–31	1931–32	1932–33
	Gallons	*Gallons*	*Gallons*	*500-lb. barrels*	*500-lb. barrels*	*500-lb. barrels*
Exports	15,368,904	12,546,500	11,252,781	1,290,393	1,119,777	1,089,294
Imports	369,260	177,830	453,982	6,974	1,155	1

Bureau of Chemistry and Soils; compiled from Department of Commerce reports.

TABLE 514.—*Hunters' licenses issued by States, with money returns, for the seasons 1931 and 1932* [1]

State	Licenses issued						Money returns	
	Resident		Nonresident and alien		Total			
	1931	1932	1931	1932	1931	1932	1931	1932
	Number	*Number*	*Number*	*Number*	*Number*	*Number*	*Dollars*	*Dollars*
Alaska	(2)	(2)	198	176	[2] 198	[2] 176	[2] 13,290.00	[2] 10,620.00
Alabama	79,381	72,271	199	153	79,580	72,424	110,530.05	95,353.25
Arizona [3]	26,978	18,000	291	150	27,269	18,150	75,395.00	48,750.00
Arkansas	62,946	51,939	1,033	2,156	63,979	54,095	78,426.60	85,541.30
California [3]	212,876	200,000	1,466	600	214,342	200,600	423,718.50	400,000.00
Colorado	[4] 100,655	[4] 94,712	197	194	[4] 100,852	[4] 94,906	[4] 218,606.75	[4] 215,133.00
Connecticut	[4] 30,548	[4] 26,183	[4] 513	[4] 451	[4] 31,061	[4] 26,634	[4] 115,988.00	[4] 96,740.00
Delaware	[4] 1,686	[4] 1,208	113	85	[4] 1,799	[4] 1,293	[4] 3,390.00	[4] 2,494.72
Florida	47,670	43,745	566	352	48,236	44,097	119,644.00	104,438.00
Georgia	48,010	30,418	168	218	48,178	30,636	85,646.00	50,231.70
Idaho	[4] 88.275	[4] 65,368	[4] 505	313	[4] 88,780	[4] 65,681	[4] 173,446.25	[4] 128,664.20
Illinois	346,208	302,458	1,637	843	347,845	303,301	284,211.00	239,488.50
Indiana	[4] 304,444	[4] 281,621	[4] 342	258	[4] 304,786	[4] 281,879	[4] 279,261.80	[4] 248,447.00
Iowa	[4] 279,383	[4] 242,901	246	196	[4] 279,629	[4] 243,097	[4] 283,073.00	[4] 242,239.70
Kansas	130,474	107,330	130	903	130,604	108,233	131,384.00	155,629.00
Kentucky	84,699	70,610	218	128	84,917	70,738	74,174.15	61,298.50
Louisiana	95,494	75,811	275	89	95,769	75,900	102,469.00	78,061.00
Maine	[4] 84,647	[4] 108,205	4,273	4,049	[4] 88,920	[4] 112,254	[4] 100,360.00	[4] 113,240.00
Maryland	60,684	61,155	1,432	947	62,116	62,102	115,475.55	103,868.00
Massachusetts	[4] 111,192	[4] 107,166	[4] 2,855	1,721	[4] 114,047	[4] 108,887	[4] 291,238.60	[4] 269,868.55
Michigan	302,058	258,459	1,253	578	303,311	259,037	646,476.00	555,170.00
Minnesota	183,974	216,985	195	159	184,169	217,144	170,051.60	238,249.40
Mississippi [5]	----------	----------	------	------	----------	----------	------------	------------
Missouri	[4] 197,118	[4] 170,275	[4] 558	[4] 439	[4] 197,676	[4] 170,714	[4] 244,087.70	[4] 244,892.00
Montana	[4] 94,816	[4] 86,937	167	129	[4] 94,983	[4] 87,066	[4] 163,121.80	[4] 152,571.00
Nebraska	[4] 182,453	[4] 147,544	[4] 506	[4] 382	[4] 182,959	[4] 147,926	[4] 187,509.00	[4] 151,364.00
Nevada	5,866	5,987	53	56	5,919	6,043	15,195.00	15,527.50
New Hampshire	[4] 54,903	[4] 51,387	[4] 2,309	[4] 1,830	[4] 57,212	[4] 53,217	[4] 136,213.60	[4] 122,537.30
New Jersey	[4] 191,848	[4] 118,698	[4] 1,404	[4] 1,118	[4] 193,252	[4] 119,816	[4] 273,003.60	[4] 330,546.60
New Mexico [3]	[4] 19,654	[4] 19,000	[4] 1,741	1,700	[4] 21,395	[4] 20,700	[4] 98,540.50	[4] 96,000.00
New York	[4] 576,538	[4] 527,805	[4] 4,395	3,347	[4] 580,933	[4] 531,152	1,108,604.54	[4] 1,007,484.19
North Carolina	106,973	78,211	1,077	672	108,050	78,883	177,100.38	128,913.00
North Dakota	26,312	28,654	65	67	26,377	28,721	45,721.40	40,177.61
Ohio	455,518	389,190	71	40	455,589	389,230	456,583.00	389,790.00
Oklahoma	89,416	92,086	516	722	89,932	92,808	92,075.50	94,758.00
Oregon	[4] 64,056	[4] 50,868	445	342	[4] 64,501	[4] 51,210	[4] 225,981.00	[4] 178,543.50
Pennsylvania	530,392	537,451	6,009	5,251	536,401	542,702	1,095,025.30	1,098,222.80
Rhode Island	8,702	8,313	203	154	8,905	8,467	19,654.00	18,202.00
South Carolina	89,118	68,581	1,596	1,190	90,714	69,771	146,706.00	113,257.00
South Dakota	67,845	70,025	739	764	68,584	70,789	86,320.00	97,845.00
Tennessee	45,087	56,566	126	98	45,213	56,664	68,087.72	89,985.11
Texas	113,121	89,841	511	321	113,632	90,162	220,515.85	173,268.80
Utah	[4] 46,581	[4] 39,127	[4] 381	[4] 328	[4] 46,962	[4] 39,455	[4] 102,427.80	[4] 85,615.50
Vermont	[4] 42,871	[4] 35,344	[4] 1,211	[4] 1,337	[4] 44,082	[4] 36,681	[4] 61,450.85	[4] 64,856.90
Virginia	[4] 137,312	[4] 121,156	[4] 2,074	1,250	[4] 139,386	[4] 122,406	[4] 239,777.00	[4] 200,905.00
Washington	[4] 201,798	[4] 167,086	[4] 2,287	100	[4] 204,085	[4] 167,186	[4] 351,285.95	[4] 280,310.00
West Virginia	[4] 91,753	129,836	[4] 209	[4] 138	[4] 91,962	[4] 129,974	[4] 151,447.50	[4] 150,287.97
Wisconsin	175,294	183,667	120	205	175,414	183,872	157,453.39	192,216.65
Wyoming	[4] 22,635	[4] 19,508	[4] 374	[4] 247	[4] 23,009	[4] 19,755	[4] 79,050.90	[4] 61,095.85
Total	6,320,262	5,729,688	47,252	36,946	6,367,514	5,766,634	9,899,195.13	9,122,699.10

[1] Figures are for the fiscal year or season ended in the calendar year named; figures in the 1931 columns have been revised from those shown for Illinois and Maine in the 1933 Yearbook, table 493.
[2] No resident license required.
[3] Estimate for 1932.
[4] Combined hunting and fishing licenses.
[5] Game and fish commission created by act of Mar. 18, 1932.

Bureau of Biological Survey.

TABLE 515.—*Current status of Federal-aid road construction as of June 30, 1933*

State	Completed mileage	Under construction						Approved for construction					Balance of Federal-aid funds available for new projects
		Estimated total cost	Federal aid allotted	Percentage completed	Mileage			Estimated total cost	Federal aid allotted	Mileage			
					Initial [1]	Stage [2]	Total			Initial [1]	Stage [2]	Total	
	Miles	*Dollars*	*Dollars*	*Per cent*	*Miles*	*Miles*	*Miles*	*Dollars*	*Dollars*	*Miles*	*Miles*	*Miles*	*Dollars*
Alabama	2, 344. 3	5, 032, 976. 50	2, 516, 488. 13	75	131. 2	110. 3	241. 5						3, 199, 828. 75
Arizona	1, 270. 4	2, 884, 355. 53	1, 355, 008. 46	72	68. 0	126. 7	194. 7	43, 050. 08	27, 982. 56		5. 9	5. 9	1, 610. 68
Arkansas	1, 932. 8	4, 613, 104. 71	2, 192, 025. 82	72	130. 6	89. 0	219. 6	1, 187, 545. 23	593, 772. 55	102. 1	15. 7	117. 8	663, 644. 66
California	2, 500. 1	7, 629, 209. 24	1, 565, 804. 03	81	130. 4	55. 1	185. 5	73, 760. 41	17, 153. 65	. 9	2. 0	2. 9	117, 095. 88
Colorado	1, 863. 7	2, 900, 175. 77	1, 320, 286. 76	79	116. 6	19. 1	135. 7	394, 215. 58	177, 396. 98	27. 9	. 2	28. 1	269, 439. 58
Connecticut	296. 8	4, 110, 880. 78	1, 695, 978. 21	80	43. 7	5. 3	49. 0						183, 167. 11
Delaware	381. 1	755, 181. 00	150, 125. 44	93	23. 6	15. 9	39. 5						
Florida	661. 1	6, 609, 972. 32	3, 168, 669. 14	81	172. 4		172. 4						989, 164. 32
Georgia	3, 238. 8	4, 303, 700. 67	1, 748, 672. 41	87	107. 4	180. 6	288. 0						100, 636. 93
Idaho	1, 592. 4	2, 354, 542. 60	841, 030. 70	79	90. 6	113. 9	204. 5	81, 908. 25	41, 788. 31	6. 2	3. 4	9. 6	73. 920. 51
Illinois	3, 110. 9	20, 162, 768. 27	7, 703, 139. 50	76	617. 0	60. 6	677. 6	716, 775. 42	311, 902. 26	27. 0		27. 0	95, 967. 25
Indiana	2, 109. 4	7, 139, 311. 52	2, 773, 730. 55	88	228. 3	20. 7	249. 0	1, 372, 003. 25	133, 528. 13	65. 0	5. 3	70. 3	209, 145. 99
Iowa	3, 540. 0	5, 321, 273. 39	803, 331. 76	96	261. 1	38. 5	299. 6						59, 251. 82
Kansas	4, 052. 9	3, 498, 351. 61	1, 032, 386. 15	70	190. 3	61. 0	251. 3	163, 196. 62	75, 935. 47	8. 6	3. 1	11. 7	153, 217. 33
Kentucky	1, 933. 6	4, 024, 383. 53	1, 395, 480. 17	73	159. 6	122. 0	281. 6	283, 561. 74	126, 218. 05	10. 7	13. 9	24. 6	48, 791. 33
Louisiana	1, 619. 6	6, 392, 245. 96	2, 785, 921. 90	68	42. 3	24. 8	67. 1						
Maine	823. 0	2, 203, 423. 77	508, 213. 51	74	66. 4	. 3	66. 7	38, 958. 62	3, 989. 09		1. 9	1. 9	76, 304. 51
Maryland	872. 7	965, 442. 17	99, 880. 77	57	33. 3	1. 5	34. 8	251, 758. 25	25, 648. 82	5. 4		5. 4	
Massachusetts	875. 9	4, 115, 901. 96	972. 218. 48	74	57. 2	4. 9	62. 1						351, 632. 06
Michigan	2, 339. 2	6, 674, 228. 20	2, 567, 439. 95	74	283. 9	97. 1	381. 0	602, 750. 00	196, 440. 00	39. 3	. 8	40. 1	175, 723. 01
Minnesota	4, 309. 6	4, 768, 398. 82	202, 728. 91	96	150. 9	139. 9	290. 8						34, 304. 16
Mississippi	1, 863. 8	6, 193, 724. 28	3, 072, 313. 77	66	185. 3	97. 9	283. 2	250, 653. 30	125, 326. 62	11. 6	4. 2	15. 8	2, 952, 041. 86
Missouri	3, 233. 2	4, 351, 270. 58	737, 807. 32	47	173. 8	17. 0	190. 8	445, 829. 85	91, 623. 60	13. 1	16. 6	29. 7	8, 827. 28
Montana	2, 973. 2	5, 616, 576. 61	3, 142, 856. 07	76	405. 9	255. 8	661. 7	57, 325. 91	32, 350. 96		12. 0	12. 0	401, 817. 97
Nebraska	4, 259. 7	6, 234, 000. 11	2, 913, 882. 72	88	156. 3	159. 9	316. 2						49, 318. 84
Nevada	1, 352. 1	1, 975, 857. 64	721, 167. 78	91	38. 7	127. 5	166. 2						117, 662. 21
New Hampshire	448. 0	563, 304. 16	232, 591. 90	75	12. 5	. 5	13. 0	85, 798. 47	36, 415. 44	1. 6	. 7	2. 3	64, 377. 21
New Jersey	637. 9	5, 309, 569. 73	1, 735, 318. 97	87	55. 7		55. 7						109, 558. 29
New Mexico	2, 300. 9	2, 532, 793. 19	975, 113. 25	96	127. 9	103. 5	231. 4	111, 736. 03	44, 694. 41		5. 1	5. 1	85, 464. 22
New York	3, 516. 6	18, 271, 330. 05	5, 611, 850. 00	55	479. 1	32. 0	511. 1						355, 781. 37
North Carolina	2, 358. 8	5, 040, 679. 02	2, 518, 674. 96	75	513. 8	28. 1	541. 9	324, 785. 47	162, 392. 71	43. 4	. 3	43. 7	977, 044. 05
North Dakota	5, 432. 1	3, 495, 612. 32	1, 451, 921. 71	51	237. 3	410. 3	647. 6	299, 625. 98	123, 677. 17	22. 8	73. 5	96. 3	416, 198. 04
Ohio	3, 057. 9	8, 085, 323. 09	2, 179, 738. 01	78	177. 5	52. 3	229. 8	76, 364. 00	23, 361, 08	1. 3	3. 3	4. 6	190, 835. 32
Oklahoma	2, 502. 2	3, 951, 579. 57	1, 210, 698. 90	84	191. 3	74. 7	266. 0	528, 539. 65	105, 707. 88	38. 2		38. 2	433, 937. 87
Oregon	1, 630. 5	4, 104, 798. 63	1, 640, 267. 03	77	106. 6	74. 4	181. 0	59, 172. 74	26, 004. 62	1. 7	1. 6	3. 3	56, 880. 55
Pennsylvania	3, 276. 8	10, 077, 698. 86	2, 532, 150. 15	68	348. 7	14. 0	362. 7						53, 641. 77

Rhode Island	271.7	1,013,905.12	318,007.01	72	22.5	4.5	27.0						70,834.03
South Carolina	1,962.5	3,413,612.84	1,277,642.73	85	161.2	154.7	315.9						12,443.92
South Dakota	4,305.3	3,155,035.66	1,288,695.86	78	249.4	201.7	451.1	278,850.45	120,075.71	20.3	29.1	49.4	169,101.27
Tennessee	1,723.5	4,645,392.30	2,321,975.19	72	159.6	40.8	200.4						576,790.79
Texas	8,113.8	15,549,620.20	5,086,325.25	76	551.2	502.8	1,054.0	719,256.12	250,336.03	40.8	18.3	59.1	49,990.22
Utah	1,286.3	1,877,602.57	774,640.08	84	127.8	36.3	164.1	259,868.69	111,261.16	24.7	12.4	37.1	
Vermont	393.8	366,965.01	43,473.80	83	18.6		18.6	201,364.63	43,000.00	7.6	6.5	14.1	151.97
Virginia	1,994.3	4,026,229.27	1,817,348.27	80	179.6	52.7	232.3	35,537.10	17,768.54	2.3		2.3	194,541.87
Washington	1,330.7	3,045,261.29	916,420.63	76	109.6	9.7	119.3						59,732.72
West Virginia	925.6	3,071,207.15	1,256,848.11	83	113.8	8.1	121.9						49,516.08
Wisconsin	2,760.1	5,384,047.69	966,926.70	78	136.3	101.9	238.2	52,061.50	21,500.00		.9	.9	265,183.36
Wyoming	2,179.8	2,606,875.23	859,481.92	89	215.7	137.9	353.6						151,122.56
Hawaii	109.4	1,687,095.81	1,138,158.71	62	36.9		36.9						514,689.68
Total	107,868.8	242,106,796.30	86,140,857.55	75	8,397.4	3,986.2	12,383.6	8,996,253.34	3,067,251.80	522.5	236.7	759.2	15,190,331.20
Construction completed		176,248,000.00	64,944,000.00										
Balance uncompleted		65,859,000.00	21,197,000.00										

[1] Initial Federal-aid construction refers to projects which are being improved with Federal aid for the first time. Such projects may or may not have been previously improved.
[2] The term "stage construction" refers to additional work done on projects previously improved with Federal aid. In general, such additional work consists of the construction of a surface of higher type than was provided in the initial improvement.

Bureau of Public Roads.

TABLE 516.—*Mileage of roads in State highway systems, including Federal-aid system, at end of 1932, and total mileage 1921, 1923–31, as reported by State highway departments*

State and year	Total system mileage	Earth nonsurfaced		Surfaced roads by types							
		Unimproved	Improved to grade	Total surfaced mileage	Sand-clay, top-soil	Gravel, chert, etc.	Water-bound macadam (treated and untreated)	Bituminous macadam	Bituminous concrete	Portland cement concrete	Brick and block
	Miles	*Miles*	*Miles*	*Miles*	*Miles*	*Miles*	*Miles*	*Miles*	*Miles*	*Miles*	*Miles*
Alabama	5,553	792	710	4,051	1,085	1,895	22	166	153	730	
Arizona	2,895	551	267	2,077	190	1,653		24	72	138	
Arkansas	9,020	715	825	7,480		5,478		348	622	1,032	
California	7,347	1,611	459	5,277		2,143		419	866	1,849	
Colorado	9,136	4,100	366	4,670	66	4,137			15	452	
Connecticut	2,291		49	2,242		289	935	315	155	546	2
Delaware	944	14	8	922		76	20	48	18	754	6
Florida	8,345	3,050	237	5,058	868	25	2,767	155	386	528	329
Georgia	8,264	3,267	473	4,524	1,539	753	485	444	265	1,035	3
Idaho	4,812	1,102	465	3,245	33	2,970		28	158	56	
Illinois	10,099	925	184	8,990		10	1	3	7	8,736	233
Indiana	8,378		210	8,168		2,709	1,285	581	55	3,430	108
Iowa	8,373	472	116	7,785		3,410				4,346	29
Kansas	8,982	3,409	261	5,312	2,353	1,597		174	3	1,023	162
Kentucky	6,842	456	822	5,564		1,187	2,750	839	47	736	5
Louisiana	17,505	5,603	425	11,477		9,436		12	229	1,795	5
Maine	2,050	67		1,983		1,528	1	265		189	
Maryland	3,644			3,644		636	1,140	132	168	1,567	1
Massachusetts	1,761			1,761		52	165	924	250	367	3
Michigan	8,422	370	208	7,844	102	3,353	481	91	402	3,404	11
Minnesota	6,772	20	46	6,706	50	4,249			76	2,320	11
Mississippi	6,070	147	700	5,223	1	4,685	11	52	21	440	13
Missouri	10,487	923	385	9,179		5,648		234	44	3,234	19
Montana	8,177	4,918	301	2,958	86	2,813		16	7	36	
Nebraska	9,752	3,064	226	6,462		5,851			17	543	51
Nevada	3,782	1,727	57	1,998		1,919		21	29	29	
New Hampshire	2,862	5	31	2,826		2,291	98	169	45	223	
New Jersey	1,877	153	15	1,709		65	52	9	261	1,270	52
New Mexico	10,254	5,266	1,984	3,004		2,898			14	92	
New York	13,947	1,930	30	11,987		107	1,164	3,204	1,278	6,045	189
North Carolina	10,033	118	1,006	8,909	3,575	702	309	669	1,014	2,639	1
North Dakota	7,591	1,922	850	4,819		4,798			1	20	
Ohio	11,759	98		11,661		4,157	1,163	1,664	511	2,609	1,557
Oklahoma	7,159	2,173	543	4,443		2,543			275	1,585	40
Oregon	4,574	328	400	3,846		2,355		568	690	233	
Pennsylvania	34,020	14,952		19,068		7,634	3,342	591	716	6,225	560
Rhode Island	1,070	263	186	621		32	96	230	123	140	
South Carolina	5,939	203	175	5,561	2,455	693	43	4	444	1,922	
South Dakota	5,967	455	782	4,730	20	4,545			5	160	
Tennessee	7,226	294	490	6,442		3,220	971	435	607	1,190	19
Texas	19,242	3,892	2,648	12,702	40	2,528	28	5,108	1,724	3,226	48
Utah	4,122	438	1,137	2,547		2,183		7	85	272	
Vermont	1,013			1,013		480	5	258		270	
Virginia	8,154	1,619	186	6,349	649	2,659	1,434	790	75	742	
Washington	3,711	177	87	3,447		2,430		20	33	954	10
West Virginia	4,380	480	432	3,468		1,398	90	805	161	919	95
Wisconsin	10,218		200	10,018	46	5,395	439	187	25	3,925	1
Wyoming	3,389	674	425	2,290		2,255			27	8	
Total, 1932	358,210	72,743	19,407	266,060	13,158	123,870	19,297	20,009	12,179	73,984	3,563
Total:											
1931	328,942	61,319	24,923	242,700	14,402	112,800	19,157	15,356	10,312	67,348	3,325
1930	324,498	69,910	27,816	226,772	15,153	107,277	20,229	14,590	8,071	58,208	3,244
1929	314,163	77,259	28,899	208,005	15,442	98,947	18,891	14,054	7,234	50,169	3,268
1928	306,442	81,549	31,755	193,138	13,499	93,124	18,142	15,200	6,890	42,957	3,326
1927	293,353	86,817	29,970	176,566	12,581	86,095	17,752	13,496	6,398	36,915	3,329
1926	287,928	96,413	28,456	163,059	11,396	79,286	18,428	12,927	5,705	31,936	3,381
1925	274,911	103,271	26,786	144,854	11,025	68,771	16,709	12,105	5,414	27,645	3,185
1924	261,216	94,651	34,456	132,109	10,446	63,158	17,033	10,346	5,211	22,825	3,090
1923	251,611	103,843	36,368	111,400	8,875	52,917	15,422	8,847	4,558	17,916	2,865
1921	209,242	102,963	21,421	[1] 84,858	8,622	36,458	16,978	6,749	2,840	10,114	2,089

[1] Includes 1,008 miles of miscellaneous surfacing not allocated by types.

Bureau of Public Roads.

TABLE 517.—*Total State highway income and funds available, 1932, as reported by State authorities*

State	Total funds available	Balances at first of year	Total income for State highways	Current revenue from State sources				Contributions from other than State sources		Loans
				State taxes and appropriations	Motor-vehicle fees	Gasoline-tax receipts	Miscellaneous revenue	Federal-aid and emergency advance funds used	Transfers from counties	State highway bonds and notes sold
	1,000 dollars	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Alabama	7, 414	−847	8, 261	-------	2, 450	4, 361	353	1, 089	8	-------
Arizona	7, 102	434	6, 668	124	669	2, 293	25	3, 555	2	-------
Arkansas	6, 048	−625	6, 673	-------	1, 666	4, 502	102	381	22	-------
California	49, 720	12, 402	37, 318	4, 451	3, 853	20, 934	700	7, 206	174	-------
Colorado	8, 152	731	7, 421	419	907	3, 790	37	2, 103	165	-------
Connecticut	18, 956	3, 402	15, 554	-------	8, 114	4, 800	646	1, 569	425	-------
Delaware	4, 415	394	4, 021	-------	1, 081	1, 100	12	823	-------	1, 005
Florida	8, 064	906	7, 158	-------	1	6, 280	10	603	264	-------
Georgia	22, 487	3, 884	18, 603	-------	3, 778	8, 702	47	5, 276	800	-------
Idaho	6, 697	482	6, 215	257	191	2, 544	1, 317	1, 474	432	-------
Illinois	58, 907	16, 319	42, 588	28	16, 812	18, 681	-------	4, 888	195	1, 984
Indiana	29, 778	6, 431	23, 347	-------	5, 636	12, 713	989	4, 009	-------	-------
Iowa	26, 822	5, 824	20, 998	-------	10, 897	5, 584	10	2, 889	-------	1, 618
Kansas	15, 465	3, 133	12, 332	-------	3, 565	5, 663	10	2, 652	442	-------
Kentucky	20, 892	4, 800	16, 092	684	3, 419	8, 112	1, 524	2, 174	179	-------
Louisiana	41, 737	2, 972	38, 765	-------	4, 053	7, 351	257	2, 492	53	24, 559
Maine	16, 994	3, 180	13, 814	1, 318	1, 553	2, 342	879	1, 564	1, 613	4, 545
Maryland	18, 224	2, 480	15, 744	2, 528	2, 373	6, 973	569	507	1, 748	1, 046
Massachusetts	35, 980	10, 288	25, 692	-------	6, 568	16, 652	12	2, 210	250	-------
Michigan	41, 088	5, 830	35, 258	-------	11, 793	15, 329	732	6, 575	829	-------
Minnesota	40, 888	7, 270	33, 618	1, 661	10, 103	6, 746	635	4, 457	-------	10, 016
Mississippi	4, 956	662	4, 294	-------	161	3, 014	37	759	323	-------
Missouri	45, 449	5, 508	39, 941	-------	9, 919	9, 198	634	2, 415	68	17, 707
Montana	8, 541	−1	8, 542	-------	-------	2, 733	24	4, 244	41	1, 500
Nebraska	10, 577	794	9, 783	100	1, 129	6, 171	-------	2, 313	70	-------
Nevada	4, 073	−180	4, 253	96	400	764	10	2, 764	19	200
New Hampshire	7, 874	1, 387	6, 487	-------	1, 917	2, 596	291	596	87	1, 000
New Jersey	71, 017	21, 065	49, 952	6, 514	9, 215	8, 960	7, 060	3, 121	-------	15, 082
New Mexico	6, 241	428	5, 813	82	403	2, 216	234	1, 686	192	1, 000
New York	111, 351	65, 578	45, 773	7, 623	13, 002	9, 415	41	11, 402	1, 153	3, 137
North Carolina	25, 872	1, 578	24, 294	-------	5, 552	14, 941	127	3, 674	-------	-------
North Dakota	5, 261	448	4, 813	35	904	1, 230	8	1, 815	821	-------
Ohio	39, 549	8, 941	30, 608	-------	4, 623	19, 358	891	5, 736	-------	-------
Oklahoma	13, 760	2, 886	10, 874	-------	2, 306	7, 548	25	496	499	-------
Oregon	14, 480	2, 178	12, 302	-------	3, 443	5, 592	334	1, 703	229	1, 001
Pennsylvania	86, 574	24, 049	62, 525	-------	28, 016	25, 745	2, 631	4, 531	1, 602	-------
Rhode Island	5, 533	4	5, 529	-------	2, 197	1, 922	34	1, 376	-------	-------
South Carolina	18, 761	4, 079	14, 682	-------	2, 156	5, 306	526	1, 694	-------	5, 000
South Dakota	5, 641	287	5, 354	48	519	2, 994	101	1, 687	5	-------
Tennessee	33, 714	8, 010	25, 704	2, 705	3, 704	6, 402	1, 318	2, 367	208	9, 000
Texas	54, 264	13, 723	40, 541	-------	3, 400	21, 585	459	8, 865	6, 232	-------
Utah	6, 314	343	5, 971	-------	797	2, 939	394	1, 432	409	-------
Vermont	7, 124	610	6, 514	1, 092	2, 234	2, 073	2	874	239	-------
Virginia	20, 327	954	19, 373	1, 791	5, 603	8, 760	339	2, 838	42	-------
Washington	19, 494	-------	19, 494	-------	1, 823	14, 664	-------	2, 427	580	-------
West Virginia	23, 248	7, 505	15, 743	-------	3, 556	4, 979	1, 101	857	-------	5, 250
Wisconsin	32, 464	13, 437	19, 027	-------	4, 194	5, 748	183	4, 763	4, 139	-------
Wyoming	5, 287	1, 295	3, 992	32	666	1, 063	253	1, 926	52	-------
Total	1, 173, 576	275, 258	898, 318	31, 588	211, 321	363, 368	25, 923	136, 857	24, 611	104, 650

Bureau of Public Roads.

TABLE 518.—*Total State highway and bridge disbursements by States, 1932, as reported by State authorities*

State	Grand total disbursements	Expenditures for State highway purposes						Other disbursements by State highway departments		
		Total expenditures	Capital investment in construction and right-of-way	Maintenance	Equipment and machinery	Miscellaneous expenses	Interest on bonds	Retirement of bonds	Transfers to counties, etc.	Other obligations imposed by statutes
	1,000 dollars	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Alabama	7,195	5,806	1,574	1,753	268	57	2,154	1,288	-	101
Arizona	7,041	6,832	5,302	1,300	230	-	-	-	-	209
Arkansas	8,168	7,243	605	835	76	-	5,727	619	10	296
California	40,003	38,228	27,984	7,162	426	-	2,656	1,775	-	-
Colorado	6,796	6,572	4,605	1,459	243	-	265	224	-	-
Connecticut	15,446	14,156	10,226	3,500	262	168	-	-	-	1,290
Delaware	3,386	3,156	2,378	253	46	-	479	73	-	157
Florida	7,530	6,885	4,631	2,173	81	-	-	-	-	645
Georgia	20,756	20,052	17,402	2,132	518	-	-	-	-	704
Idaho	6,592	5,866	3,991	1,488	256	-	131	455	-	271
Illinois	45,092	38,216	27,466	4,187	666	34	5,863	2,500	3,465	911
Indiana	23,183	21,183	15,973	4,224	986	-	-	-	-	2,000
Iowa	23,738	21,921	14,531	2,615	443	-	4,332	1,817	-	-
Kansas	12,704	12,550	8,106	2,878	1,566	-	-	-	-	154
Kentucky	20,174	19,137	13,491	4,162	1,042	29	413	636	-	401
Louisiana	38,852	26,943	20,172	3,685	65	-	3,021	4,094	-	7,815
Maine	16,243	11,169	7,253	1,946	495	539	936	877	1,266	2,931
Maryland	15,950	14,083	10,647	2,235	365	-	836	1,692	-	175
Massachusetts	29,596	18,696	11,731	6,487	175	47	256	239	3,281	7,380
Michigan	36,211	34,079	25,505	6,325	-	-	2,249	1,833	56	243
Minnesota	36,959	33,140	25,189	5,688	531	-	1,732	1,659	1,740	420
Mississippi	4,759	4,749	2,511	1,974	264	-	-	-	-	10
Missouri	37,335	35,137	26,051	3,563	1,604	-	3,919	1,000	-	1,198
Montana	8,502	8,469	6,653	1,351	409	-	56	-	-	33
Nebraska	10,057	9,941	6,804	3,035	102	-	-	-	-	116
Nevada	4,299	4,152	3,483	626	17	-	26	131	-	16
New Hampshire	7,112	6,318	3,169	2,688	250	-	211	575	169	50
New Jersey	49,197	36,893	25,447	2,216	73	1,501	7,656	2,237	6,651	3,416
New Mexico	5,718	4,938	2,479	1,795	141	77	446	780	-	-
New York	54,285	53,685	36,699	9,714	1,624	428	5,220	600	-	-
North Carolina	22,516	11,098	2,728	3,610	-	-	4,760	3,200	7,704	514
North Dakota	5,084	4,269	3,039	1,135	95	-	-	-	815	-
Ohio	36,703	35,662	21,773	13,366	523	-	-	-	-	1,041
Oklahoma	12,144	12,137	9,151	2,414	572	-	-	-	-	7
Oregon	13,188	10,014	6,506	2,123	-	15	1,370	2,975	-	199
Pennsylvania	68,947	56,063	31,417	15,204	5,047	655	3,740	3,000	344	9,540
Rhode Island	4,768	4,070	2,875	934	18	-	243	75	57	566
South Carolina	15,328	5,628	3,158	1,213	20	137	1,100	5,000	4,323	377
South Dakota	5,413	4,833	3,338	1,470	10	15	-	-	474	106
Tennessee	25,405	14,076	6,279	1,941	1,071	438	4,347	9,481	-	1,848
Texas	42,796	39,177	28,100	10,540	411	126	-	-	-	3,619
Utah	6,038	5,570	3,414	1,559	243	29	325	413	-	55
Vermont	6,177	5,304	3,243	1,308	468	-	285	400	-	473
Virginia	17,640	16,145	9,138	6,631	-	121	255	1,000	-	495
Washington	19,494	15,524	12,198	3,228	98	-	-	-	3,970	-
West Virginia	20,070	16,355	8,984	3,017	254	-	4,100	3,557	-	158
Wisconsin	25,705	25,678	20,242	5,426	10	-	-	-	-	27
Wyoming	5,151	4,967	3,805	911	68	-	183	175	-	9
Total	955,446	816,765	551,446	169,479	22,132	4,416	69,292	54,380	34,325	49,976

Bureau of Public Roads.

TABLE 519.—*Motor-vehicle registration and revenues by States, 1932, and totals for 1925–31, as reported by State authorities*

State	Registered motor vehicles			Gross registration receipts	Disposition of gross receipts [1]			
	All motor cars and trucks	Passenger autos, taxis, and busses	Motor trucks and road tractors		Collection costs	State highways	Local roads	On road bonds and miscellaneous
	Number	*Number*	*Number*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Alabama	226,471	194,237	32,234	3,038	132	1,010	532	1,364
Arizona	94,947	80,099	14,848	709	175	534	--------	--------
Arkansas	136,503	112,587	23,916	2,796	28	425	--------	2,343
California	1,971,616	1,738,385	233,231	9,391	1,647	2,963	2,964	1,817
Colorado	285,860	255,854	30,006	1,947	97	925	925	--------
Connecticut	321,105	269,863	51,242	7,954	1,033	6,921	--------	--------
Delaware	52,851	43,441	9,410	1,018	--------	562	--------	456
Florida	286,091	248,517	37,574	5,268	328	2	1	4,937
Georgia	287,716	245,666	42,050	3,826	--------	3,634	--------	192
Idaho	95,325	81,993	13,332	1,617	85	190	1,342	--------
Illinois	1,493,498	1,311,783	181,715	16,967	--------	4,954	2,500	9,513
Indiana	796,815	675,108	121,707	6,091	318	5,622	--------	151
Iowa	680,330	606,523	73,807	11,671	463	10,835	--------	373
Kansas	504,367	432,610	71,757	5,439	214	3,425	1,800	--------
Kentucky	293,265	260,959	32,306	4,651	398	3,673	580	--------
Louisiana	242,748	198,787	43,961	4,120	77	3,713	--------	330
Maine	171,757	136,774	34,983	2,957	457	653	--------	1,847
Maryland	321,242	286,583	34,659	3,450	345	2,484	--------	621
Massachusetts	801,909	698,358	103,551	6,568	1,518	4,207	--------	843
Michigan	1,134,808	1,000,169	134,639	19,836	852	10,512	7,000	1,472
Minnesota	683,397	581,905	101,492	10,122	315	6,330	--------	3,477
Mississippi	149,095	120,180	28,915	2,138	182	157	1,799	--------
Missouri	717,460	618,195	99,265	9,825	601	4,305	--------	4,919
Montana	109,129	88,647	20,482	1,294	44	--------	1,250	--------
Nebraska	375,716	322,347	53,369	3,349	103	974	2,272	--------
Nevada	31,830	25,035	6,795	395	30	250	--------	115
New Hampshire	106,431	88,141	18,290	2,104	257	1,847	--------	--------
New Jersey	857,850	726,201	131,649	15,413	348	2,376	7,310	5,379
New Mexico	76,767	61,720	15,047	770	66	317	282	105
New York	2,241,930	1,931,384	310,546	41,272	911	13,002	9,953	17,406
North Carolina	375,695	328,500	47,195	5,444	371	923	1,675	2,475
North Dakota	153,570	130,660	22,910	1,800	73	1,020	707	--------
Ohio	1,589,524	1,420,550	168,974	18,425	545	4,800	13,080	--------
Oklahoma	428,302	379,599	48,703	4,789	104	1,955	2,730	--------
Oregon	259,271	236,405	22,866	6,548	375	2,248	1,473	2,452
Pennsylvania	1,664,021	1,448,978	215,043	29,816	1,639	24,305	--------	3,872
Rhode Island	133,408	114,950	18,458	2,184	278	1,849	57	--------
South Carolina	177,020	157,453	19,567	2,470	66	638	--------	1,766
South Dakota	161,933	142,552	19,381	2,444	70	484	1,890	--------
Tennessee	298,713	267,279	31,434	3,872	125	3,555	--------	192
Texas	1,191,324	1,001,675	189,649	13,155	741	4,011	8,403	--------
Utah	99,851	83,089	16,762	802	64	--------	--------	738
Vermont	77,595	69,230	8,365	2,218	--------	2,218	--------	--------
Virginia	370,587	308,806	61,781	6,241	386	5,855	--------	--------
Washington	446,001	381,490	64,511	2,180	606	1,121	373	80
West Virginia	227,888	193,232	34,656	4,065	184	323	--------	3,558
Wisconsin	694,652	587,906	106,746	10,281	780	3,295	5,066	1,140
Wyoming	56,226	46,330	9,896	676	--------	510	--------	166
District of Columbia	160,567	142,890	17,677	868	120	--------	--------	748
Total, 1932	24,114,977	20,883,625	3,231,352	324,274	17,551	155,912	75,964	74,847
Total:								
1931	25,814,103	22,348,023	3,466,080	344,338	19,689	200,734	70,043	53,872
1930	26,545,281	23,059,262	3,486,019	355,705	19,197	222,147	68,578	45,783
1929	26,501,443	23,121,589	3,379,854	347,844	17,403	223,293	66,861	40,287
1928	24,493,124	21,379,125	3,113,999	322,630	15,134	208,880	60,399	38,217
1927	23,133,241	20,219,223	2,914,018	301,061	14,876	189,985	53,578	42,622
1926	22,001,393	19,237,171	2,764,222	288,282	16,602	191,111	51,702	28,867
1925	19,937,274	17,496,420	2,440,854	260,620	11,993	177,707	48,396	22,524

[1] These figures do not always agree with those shown on highway income tables, because of time of disposition and use of fiscal years.

Bureau of Public Roads.

TABLE 520.—*Gasoline taxes, by States, 1932, and totals for 1925–31, as reported by State authorities*

State	Total tax (refunds deducted)	Disposition of total taxes collected: Collection costs	Construction, etc.: State highways [1]	Construction, etc.: Local roads [1]	State and county road-bond payments	Miscellaneous and city streets	Gallons consumed by motor vehicles	Tax rate per gallon
	1,000 dollars	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 gallons*	*Cents*
Alabama	7,001	18	2,465	3,039	1,479		136,422	6
Arizona	2,901		1,892	1,009			58,004	5
Arkansas	5,165	166	601	1,049	3,349		86,083	6
California	36,129	18	24,052	12,027		32	1,204,295	3
Colorado	5,469	61	3,786	1,460		162	136,731	4
Connecticut	4,733		4,733				234,229	2
Delaware	1,090		685		405		36,338	3
Florida	14,532	23	6,218		6,218	2,073	207,268	7
Georgia	11,939	4	7,957	1,989		1,989	198,980	6
Idaho	2,287	11	1,938		329	9	45,555	5
Illinois	28,754	182	19,048	9,524			958,468	3
Indiana	16,740	78	12,497	3,124		1,041	418,489	4
Iowa	8,970	157	3,714	3,499	1,600		299,005	3
Kansas	7,420		5,620	1,800			247,350	3
Kentucky	8,206	41	8,165				164,058	5
Louisiana	8,301	62	3,202		3,377	1,660	166,014	5
Maine	4,254	22	2,116	2,116			105,168	4
Maryland	7,500	13	5,930			1,557	187,506	4
Massachusetts	16,519	50	15,429			1,040	550,643	3
Michigan	20,461	216	12,880	4,335	3,000	30	681,044	3
Minnesota	10,001		6,667	3,334			333,352	3
Mississippi	5,844	38	2,822	2,430	339	215	96,732	6
Missouri	8,950	58	8,892				447,485	2
Montana	2,690	32	2,513		56	89	53,803	5
Nebraska	7,810	15	5,846	1,949			195,237	4
Nevada	727		727				18,178	4
New Hampshire	2,639		1,979		660		65,971	4
New Jersey	16,675	29	7,296		1,260	8,090	553,914	3
New Mexico	2,210	32	1,008		1,170		43,845	5
New York	42,581	50	9,415	5,948		27,168	1,485,128	3
North Carolina	13,907	9	2,188	4,742	6,739	229	231,727	6
North Dakota	1,837	25	1,208	604			61,190	3
Ohio	34,269	140	19,072	8,604		6,453	856,729	4
Oklahoma	9,682	81	7,185	2,395		21	241,527	4
Oregon	5,591	17	3,619		1,955		140,066	4
Pennsylvania	30,801	998	21,883	5,056	2,864		1,009,664	3
Rhode Island	1,857		856	716	285		92,701	2
South Carolina	6,225		1,590	1,038	3,597		103,749	6
South Dakota	2,963	42	2,921				74,084	4
Tennessee	12,185	81	3,285	3,458	3,632	1,729	174,077	7
Texas	27,064		18,095		2,203	6,766	676,594	4
Utah	2,173	6	2,167				54,298	4
Vermont	1,875		1,590		285		46,866	4
Virginia	10,810		7,567	3,243			216,192	5
Washington	11,047		8,837	2,210			220,930	5
West Virginia	4,949	16	834		4,099		123,545	4
Wisconsin	14,948	42	7,846	3,022	1,713	2,325	373,710	4
Wyoming	1,418		952	354	112		35,454	4
District of Columbia	2,040					2,040	101,775	2
Total, 1932	514,139	2,833	301,788	94,074	50,726	64,718	14,250,173	[2] 3.60
Total:								
1931	537,589	2,117	354,017	100,074	42,488	38,893	15,407,650	[2] 3.48
1930	494,683	1,102	338,927	96,226	31,049	27,379	14,751,309	[2] 3.35
1929	431,636	778	297,968	85,113	23,372	24,405	13,400,180	[2] 3.22
1928	305,234	695	211,046	57,381	17,620	18,492	10,178,345	[2] 3.00
1927	258,967	500	182,096	55,440	10,086	10,845	9,366,652	[2] 2.76
1926	187,603	239	129,442	43,609	5,239	9,074	7,883,984	[2] 2.38
1925	146,029	217	98,605	31,849	4,333	11,025	6,457,783	[2] 2.26

[1] These figures do not always agree with those shown on highway income tables because of time of disposition and use of fiscal years.
[2] Average.

Bureau of Public Roads.

TABLE 521.—*Annual average wage rate per hour for common labor employed on Federal-aid highway projects, 1924–33*

Year	New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific	United States
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924	49	43	40	36	28	24	27	40	53	38
1925	46	43	37	37	27	25	26	44	52	38
1926	49	47	38	36	29	25	27	44	52	38
1927	49	47	39	37	28	25	30	45	53	40
1928	49	43	39	38	26	26	28	46	52	41
1929	51	43	39	37	28	26	31	47	53	39
1930	50	42	38	37	25	24	28	47	53	39
1931	45	37	36	35	22	20	23	45	51	36
1932	35	36	36	32	19	19	26	44	48	32
1933 [1]	35	34	38	29	21	19	28	47	48	32

[1] Does not include wage rates on public works highway projects. For these projects it is required that minimum wage rates, sufficient to provide, for the hours of labor as limited, a standard of living in decency and comfort, shall be fixed by State highway departments. The averages of these rates for common labor were as follows: New England 40 cents, Middle Atlantic 40 cents, East North Central 47 cents, West North Central 45 cents, South Atlantic 31 cents, East South Central 30 cents, West South Central 35 cents, Mountain 55 cents, Pacific 56 cents, and United States 44 cents.

Bureau of Public Roads.

TABLE 522.—*Fertilizer materials: Sales and production of agricultural lime, phosphate rock, sulphur, and pyrites, in quantity and value, United States, 1930–32*

Item	Quantity			Value		
	1930	1931	1932	1930	1931	1932
Agricultural lime and liming materials sold: [1]						
Lime from limestone:	*Short tons*	*Short tons*	*Short tons*	*Dollars*	*Dollars*	*Dollars*
Quicklime	91,521	78,392	220,000	512,383	422,107	
Hydrated	251,590	218,920		1,860,396	1,502,042	
Lime from oyster shells [2]	15,000	11,207		135,000	85,884	
Limestone pulverized	2,542,100	1,421,050		3,309,329	2,117,141	
Calcareous marl	34,012	25,056		112,523	65,935	
Total	2,934,223	1,754,625		5,929,631	4,193,109	
Phosphate rock sold or used: [3]						
Sold for direct application to the soil	*Long tons* 41,593	*Long tons*	*Long tons*			
Florida:						
Hard rock	81,753	57,224	57,579	517,229	380,540	373,251
Land pebble [4]	3,166,318	2,004,242	[5] 1,412,397	10,273,076	6,821,546	[5] 4,406,361
Tennessee:						
Brown and blue rock	611,045	343,622	[6] 193,666	2,938,525	1,545,607	[6] 776,367
Other States [7]	67,276	129,871	43,262	268,000	540,792	182,514
Total	3,926,392	2,534,959	1,706,904	13,996,830	9,288,485	5,738,493
Sulphur produced	2,588,981	2,128,930	890,440			
Sulphur sold	1,989,917	1,376,526	1,108,852	35,800,000	24,800,000	20,000,000
Pyrites produced	347,512	330,848	186,485	1,028,680	974,820	492,043

[1] Sold by producers. (Includes a small amount sold by Hawaii and Puerto Rico producers.)
[2] Partly estimated.
[3] Sold or used by producers.
[4] Includes soft rock.
[5] Includes a small quantity of tailings.
[6] Includes a small quantity of apatite from Virginia.
[7] Idaho, Wyoming, and Montana.

Bureau of Agricultural Economics; compiled from reports of the Bureau of Mines.
Figures for earlier years appear in previous issues of the Yearbook.

TABLE 523.—*Fertilizer: Consumption in the United States, by States, 1922–32*

State and division	Calendar year [1]										
	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932 [2]
	1,000 short tons	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*
Maine	[3] 172	[3] 168	[3] 182	[3] 185	147	184	[4] 179	186	196	195	175
New Hampshire [3]	15	17	16	16	15	17	17	[5] 12	11	11	11
Vermont	[3] 16	[3] 18	[3] 17	[3] 18	[3] 18	16	17	15	16	15	12
Massachusetts	66	64	62	63	59	72	71	[5] 69	67	65	62
Rhode Island [4]	8	9	9	9	8	10	10	[5] 8	8	7	6
Connecticut	[3] 70	[3] 70	[3] 70	[3] 70	[3] 70	[3] 65	[3] 72	[5] 69	[3] 69	70	50
New York	[4] 250	[4] 250	[4] 250	253	234	260	[4] 260	[5] 288	[4] 288	[4] 260	235
New Jersey	177	157	153	147	135	142	144	[5] 162	156	151	138
Pennsylvania	322	309	320	328	329	327	340	[5] 348	334	287	235
North Atlantic	1,096	1,062	1,079	1,089	1,015	1,093	1,110	1,157	1,145	1,061	924
Ohio	311	303	321	322	305	313	321	339	327	249	178
Indiana [6]	209	198	192	226	228	240	221	250	224	166	80
Illinois	14	17	17	25	25	[4] 26	31	38	41	32	12
Michigan	86	84	95	109	105	117	[4] 150	[4] 153	[4] 145	105	82
Wisconsin	14	15	15	12	16	23	33	41	51	46	27
Minnesota	[4] 6	[4] 7	[4] 8	[4] 9	11	11	14	[5] 16	16	18	9
Iowa	[4] 4	[4] 4	[4] 5	[3] 6	[7] 6	[7] 7	[3] 10	[5] 21	[3] 25	[3] 22	10
Missouri [6]	50	52	47	64	57	56	65	59	60	49	27
Kansas	[4] 4	[4] 5	[4] 5	[3] 4	8	[4] 8	9	[6] 10	[6] 6	[6] 3	3
Other States	1	1	1	1	1	1	1	2	3	2	1
North Central	699	686	706	778	762	802	855	929	898	692	429
Delaware	40	37	36	41	43	41	41	[5] 43	43	36	33
Maryland	156	155	151	165	163	173	165	[5] 180	177	146	125
Virginia [6]	450	422	442	452	435	408	438	430	449	379	280
West Virginia [4]	38	40	40	41	43	44	50	[5] 46	45	40	35
North Carolina [6]	951	1,066	1,183	1,218	1,218	1,171	1,349	1,294	1,242	1,003	696
South Carolina [6]	527	693	844	873	840	727	788	760	749	599	446
Georgia [6]	522	676	679	779	780	713	883	869	929	686	357
Florida [6]	354	398	365	359	399	417	469	427	489	419	381
South Atlantic	3,038	3,487	3,740	3,928	3,921	3,686	4,191	4,049	4,123	3,308	2,353
Kentucky	85	90	85	93	92	70	90	93	114	105	55
Tennessee [6]	90	106	115	142	156	112	151	143	164	119	63
Alabama [6]	284	448	457	598	615	478	681	675	644	420	206
Mississippi [6]	143	208	206	258	278	219	333	328	404	197	85
Arkansas [6]	36	80	97	123	126	75	126	157	158	62	17
Louisiana [6]	75	105	125	111	114	93	144	174	176	94	49
Oklahoma	[4] 2	[4] 4	[4] 4	[3] 5	[3] 6	[3] 4	[6] 8	[6] 9	[6] 7	[6] 7	3
Texas [6]	34	79	128	101	125	81	145	192	145	65	34
South Central	749	1,120	1,217	1,431	1,512	1,132	1,678	1,771	1,812	1,069	512
Washington	[3] 4	[3] 5	[3] 7	[4] 10	12	14	[4] 16	[5] 21	[4] 22	[4] 18	9
Oregon	[4] 8	[4] 8	[4] 8	[4] 8	[4] 8	[4] 9	[3] 10	[5] 12	[3] 12	[3] 11	10
California	75	72	66	86	94	103	121	130	142	132	115
Other States	1	2	2	3	4	4	4	[5] 10	10	15	10
Western	88	87	83	107	118	130	151	173	186	176	144
United States	5,670	6,442	6,825	7,333	7,328	6,843	7,985	8,079	8,164	6,306	4,362

[1] Except as follows: New Hampshire, Massachusetts, Idaho, and Oklahoma (1922–28), year ended June 30; Rhode Island, year ended Mar. 31; New Jersey, year ended Oct 31.
[2] Preliminary.
[3] Estimated by State authorities.
[4] Estimated.
[5] Agricultural census.
[6] Based on tag sales.
[7] Total of 4 companies plus estimates for others.

Bureau of Agricultural Economics; compiled from reports of the National Fertilizer Association, published in the Fertilizer Review ;based on fertilizer tag sales or sale records, or estimates, as shown in footnotes.

TABLE 524.—*Fertilizer and fertilizer materials: Production, sales, imports, exports, and consumption, United States, 1928–32*

Item	1928	1929	1930	1931	1932 [1]
Sulphate of ammonia (equivalent of all forms):	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*
Production [2] [3]	798, 887	856, 214	769, 022	569, 986	354, 104
Sales [2] [3]	764, 355	827, 674	746, 031	578, 475	370, 594
Imports for consumption	42, 133	21, 338	39, 160	127, 999	344, 188
Exports	104, 177	162, 132	91, 461	74, 930	16, 511
Nitrate of soda, imports for consumption	1, 156, 860	1, 042, 113	643, 881	616, 687	56, 482
Sulphuric acid:					
Production	2, 126, 860	2, 262, 784	2, 228, 588	1, 427, 923	952, 581
Imports for consumption	13, 164	8, 104	459	1, 172	749
Exports, domestic	3, 500	3, 480	2, 735	1, 601	1, 516
Consumption [4]	2, 440, 121	2, 445, 581	2, 476, 712	1, 351, 551	770, 592
Superphosphate:					
Production [4]	4, 487, 683	4, 342, 012	4, 595, 096	2, 744, 528	1, 767, 660
Sales [4] [5]	1, 308, 669	1, 430, 700	1, 455, 259	1, 030, 665	709, 727
Exports	99, 247	95, 332	125, 058	91, 377	26, 749
Potash:					
Production	104, 129	107, 820	105, 810	133, 920	143, 120
Sales	105, 208	101, 370	98, 280	133, 430	121, 390
Exports	----------	15, 532	17, 042	32, 460	2, 034
Imports (general) [6] from—					
Spain	11, 339	21, 596	25, 811	29, 897	17, 725
Germany	617, 434	543, 072	567, 382	306, 028	187, 657
Netherlands [7]	21, 178	12, 804	29, 420	133, 577	42, 691
France	3, 974	----------	----------	3, 720	5, 364
Belgium [8]	276, 158	292, 482	309, 417	54, 116	28, 866
Other countries	1, 533	548	1, 295	1, 455	5, 235
Total	931, 616	870, 502	933, 325	528, 793	287, 538
Imports for consumption:					
Kainit	119, 897	85, 042	125, 455	61, 750	55, 299
Manure salts	453, 242	437, 727	405, 215	200, 600	113, 038
Muriate of potash	261, 644	258, 682	306, 047	202, 204	87, 761
Sulphate of potash	96, 833	89, 051	96, 608	63, 663	31, 440
Other potash-bearing substances	12, 076	706	613	547	393
Total	943, 692	871, 208	933, 938	528, 764	287, 931

[1] Preliminary.
[2] Byproduct of coke ovens; production from other sources (coal, gas, bone carbonizing, etc.) is usually less than 5 percent of the total production.
[3] Includes ammonia liquor NH^3 content converted to sulphate equivalent.
[4] Fertilizer establishments only.
[5] Bulk superphosphate. Superphosphate in base and mixed goods excluded.
[6] Includes kainit, manure salts, sulphate of and muriate of potash.
[7] Originated mostly in Germany.
[8] Originated mostly in France.

Bureau of Agricultural Economics; compiled as follows: Production and sales, sulphate of ammonia and potash from Bureau of Mines; sulphuric acid and superphosphate from Bureau of the Census; imports and exports from Bureau of Foreign and Domestic Commerce.

TABLE 525.—*Nitrogen: World production of, contained in inorganic nitrogenous materials, 1929–33*

Product	Quantity produced during year ended June 30				
	1929	1930	1931	1932	1933
	Short tons	*Short tons*	*Short tons*	*Short tons*	*Short tons*
Byproduct sulphate of ammonia	413, 600	466, 900	395, 600	331, 800	293, 400
Other byproduct ammonia [1]	56, 100	56, 500	34, 000	33, 000	31, 200
Cyanamide	211, 200	290, 200	221, 000	148, 100	188, 900
Synthetic sulphate of ammonia	533, 500	486, 300	384, 000	574, 400	631, 500
Nitrate of lime	149, 600	143, 500	121, 600	86, 800	122, 300
Other synthetic nitrogen [1]	421, 300	470, 000	432, 500	382, 600	486, 400
Chilean nitrate of soda	539, 000	510, 400	275, 000	187, 000	77, 900
Total	2, 324, 300	2, 423, 800	1, 863, 700	1, 743, 700	1, 831, 600

[1] Including ammonia products used for industrial purposes and ammonia in mixed fertilizers.

Bureau of Chemistry and Soils; British Sulphate of Ammonia Federation Ltd., annual report.
Fertilizers are included in this table under the final form as sold, so that, for example, cyanamide if converted into sulphate of ammonia is included under synthetic sulphate of ammonia, or, if into ammophos, is included under other synthetic nitrogen.

TABLE 526.—*Insecticides and fungicides: Production, sales, imports for consumption and domestic exports, 1928–32*

Item	1928	1929	1930	1931	1932
	Pounds	*Pounds*	*Pounds*	*Pounds*	*Pounds*
Arsenic, white:					
Production [1]	28, 362, 000	33, 210, 000	34, 114, 000	34, 274, 000	25, 408, 000
Sales: [2]					
Refined	16, 230, 000	19, 646, 000	29, 308, 000	23, 964, 000	21, 016, 000
Crude	7, 304, 000	9, 446, 000	5, 542, 000	3, 590, 000	3, 950, 000
Imports for consumption	22, 305, 972	26, 314, 042	20, 942, 663	15, 581, 398	13, 764, 683
Calcium arsenate:					
Production		33, 064, 426		26, 128, 620	
Imports for consumption	1, 323		6, 359	40, 950	4, 500
Exports	1, 178, 702	3, 139, 633	3, 177, 335	2, 145, 653	2, 533, 599
Lead arsenate:					
Production		30, 682, 379		37, 974, 038	
Imports for consumption		200	800		
Exports	1, 093, 673	1, 563, 982	2, 270, 980	1, 788, 345	1, 189, 629
Sulphate of copper:					
Production [3]	44, 463, 000	40, 258, 860	36, 976, 403	35, 265, 409	24, 908, 525
Imports for consumption	3, 611, 844	5, 388, 743	5, 964, 378	2, 643, 741	3, 234, 058
Exports	8, 666, 899	6, 419, 688	5, 061, 554	7, 190, 919	4, 132, 529
Tobacco extracts, exports [4]	2, 386, 526	2, 294, 567	1, 929, 171	1, 542, 811	1, 315, 947
Sodium arsenate:					
Imports for consumption	12, 403	133, 539	94, 051	9, 284	5, 763
Prepared animal dips:					
Imports for consumption [5]	175, 055	208, 770	174, 215	154, 530	62, 509
Exports		2, 252, 644	1, 258, 139		

[1] Byproduct from the mining of copper, lead, and iron ores. (Bureau of Mines.) The Census of Manufactures gives production for 1929 as 42,926,400 pounds and 1931 as 43,704,148 pounds.
[2] Sales by producers. (Bureau of Mines.)
[3] Copper industry only. (Bureau of Mines.) The total production as reported by the census for 1929 was 78,669,112 pounds; and 1931, 60,981,335 pounds.
[4] Nicotine sulphate and "other tobacco extracts."
[5] Classified as sheep dip.

Bureau of Agricultural Economics; production and sales from Bureau of the Census and Bureau of Mines (indicated by footnote); imports and exports from the Bureau of Foreign and Domestic Commerce.

TABLE 527.—*Insecticides and fungicides: Average wholesale price per pound at New York, 1924–33* [1]

Calendar year	Arsenic white	Calcium arsenate	Lead arsenate		Paris green	Bordeaux mixture		Lime-sulphur solution, per gallon
			Powder	Paste		Powder	Paste	
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
1924	9. 4	10. 6	20. 9	13. 1	28. 8	16. 3	12. 5	16. 5
1925	5. 1	7. 8	15. 6	11. 0	21. 5	13. 2	11. 0	16. 5
1926	3. 8	8. 0	14. 6	11. 0	18. 4	11. 5	11. 0	14. 7
1927	4. 0	7. 5	13. 8		19. 2	11. 5	11. 0	15. 5
1928	4. 4	6. 8	14. 1		27. 0	11. 3	10. 9	15. 5
1929	4. 5	7. 4	13. 5		30. 9	11. 3	10. 7	15. 2
1930	4. 5	8. 1	14. 5		35. 2	13. 0	13. 0	15. 2
1931	4. 5	6. 5	12. 6		32. 5	12. 8	12. 8	15. 2
1932	4. 5	6. 0	11. 6		30. 1	12. 8	12. 8	16. 3
1933	4. 4	6. 8	10. 4		29. 7	11. 0	11. 0	17. 0

[1] Average of monthly range.

Bureau of Agricultural Economics; compiled from the Oil, Paint, and Drug Reporter.

TABLE 528.—*Number of farmers' marketing and purchasing associations, estimated membership, and estimated business, by commodity groups, geographic divisions, farm credit districts, and leading States, 1932–33 marketing season*

Division, district, and State	Cotton and cotton products			Dairy products			Forage crops		
	Listed [1]	Estimated membership [2]	Estimated business	Listed [1]	Estimated membership [2]	Estimated business	Listed [1]	Estimated membership [2]	Estimated business
	Number	*Number*	*1,000 dollars*	*Number*	*Number*	*1,000 dollars*	*Number*	*Number*	*1,000 dollars*
United States	274	200,000	42,000	2,293	724,000	390,000	33	7,800	1,500
Geographic divisions:									
New England				58	42,450	35,040			
Middle Atlantic				57	112,400	104,210			
East North Central				995	216,400	108,170	2	3,000	200
West North Central	4	300	20	992	277,370	81,520	5	1,170	230
South Atlantic	38	31,000	4,800	32	12,820	14,640			
East South Central	22	71,000	14,130	19	6,410	3,060	4	1,450	320
West South Central	201	95,200	21,720	17	6,700	1,220	3	100	10
Mountain	7	1,800	600	40	20,250	6,890	13	1,840	540
Pacific	2	700	730	83	29,200	35,250	6	240	200
Farm credit districts:									
1				86	118,250	114,610			
2				46	44,600	38,290			
3	38	31,000	4,800	15	4,820	990			
4	3	20,000	5,130	73	58,600	23,860	3	1,300	310
5	24	65,000	14,900	3	110	400	1	150	10
6	9	500	40	90	52,800	31,440	3	3,290	260
7				1,514	243,520	106,320	1	150	70
8				320	139,970	29,920	2	710	100
9	107	32,400	4,300	30	13,970	3,630	5	160	220
10	89	50,000	12,000	6	2,000	330	3	100	10
11	4	1,100	830	26	11,310	20,750	5	300	310
12				84	34,050	19,460	10	1,640	210
Leading States:									
Minnesota				634	115,200	47,200			
Illinois				78	40,000	28,400	2	3,000	200
Iowa				251	71,600	23,000			
Wisconsin				787	71,800	42,680			
California	2	700	730	18	9,300	20,080	3	150	200
New York				28	75,800	79,570			
Missouri	4	300	20	12	12,800	3,040	1	290	60
Ohio				29	31,800	15,800			
Nebraska				40	50,000	4,590	1	60	20
Michigan				73	52,300	15,890			
Indiana				28	20,500	5,400			
Kansas				9	5,450	850	1	20	
All others	268	199,000	41,250	306	167,450	103,500	25	4,280	1,020

Division, district, and State	Fruits and vegetables			Grain [3]			Livestock		
United States	1,268	170,000	200,000	3,131	600,000	280,000	1,575	440,000	182,000
Geographic divisions:									
New England	34	1,340	2,990				2	350	160
Middle Atlantic	80	10,650	12,000	6	7,000	1,340	4	4,800	2,320
East North Central	117	12,080	9,500	841	195,000	86,000	551	210,000	72,040
West North Central	90	13,410	5,370	1,953	338,000	145,500	916	183,000	90,350
South Atlantic	195	22,070	29,730	6	5,050	1,030	33	9,450	1,160
East South Central	77	9,870	3,710	2	250	110	20	14,500	1,830
West South Central	122	14,560	7,050	95	25,200	16,500	11	3,600	3,780
Mountain	107	23,220	12,150	113	18,400	12,520	31	10,100	5,790
Pacific	446	62,800	117,500	115	11,100	17,000	7	4,200	4,570
Farm credit districts:									
1	98	10,590	10,990	4	4,000	940	4	4,350	1,810
2	57	7,900	10,330	8	8,050	1,430	29	9,300	1,720
3	154	16,570	23,400				6	950	110
4	69	8,900	6,010	293	87,250	28,110	127	85,000	20,320
5	46	6,010	2,900	2	1,200	3,500	10	4,500	510
6	129	13,700	3,600	557	100,500	54,000	343	120,600	58,080
7	101	13,260	5,670	780	148,000	58,000	597	122,000	40,140
8	17	2,700	2,680	858	148,800	61,900	395	71,100	42,850
9	63	11,520	6,810	417	76,100	44,010	34	12,000	8,850
10	35	4,900	4,100	16	3,500	4,000	3	2,000	2,500
11	350	53,000	97,810	25	2,100	4,110	5	3,500	4,350
12	149	21,950	25,700	171	20,500	20,000	22	4,700	760

[1] Including independent local associations, federations, large-scale centralized associations, sales agencies and independent service-rendering associations, but not subsidiaries nor associations renting unsold property.
[2] Including members, contract members, shareholders, shippers, consignors, and patrons.
[3] Including dry beans and rice.

TABLE 528.—*Number of farmers' marketing and purchasing associations, estimated membership, and estimated business, by commodity groups, geographic divisions, farm credit districts, and leading States, 1932–33 marketing season*—Continued

Division, district, and State	Fruits and vegetables			Grain [3]			Livestock		
	Listed [1]	Estimated membership [2]	Estimated business	Listed [1]	Estimated membership [2]	Estimated business	Listed [1]	Estimated membership [2]	Estimated business
	Number	*Number*	*1,000 dollars*	*Number*	*Number*	*1,000 dollars*	*Number*	*Number*	*1,000 dollars*
Leading States:									
Minnesota	24	4,200	700	274	62,000	23,000	315	60,000	25,600
Illinois	26	1,200	500	420	70,000	44,000	222	80,000	40,000
Iowa	3	600	170	337	60,000	26,000	315	55,000	32,600
Wisconsin	22	1,500	800	46	13,000	4,000	144	30,000	7,400
California	322	44,000	95,000	22	1,600	4,000	4	3,000	4,330
New York	55	6,250	6,000	4	4,000	940	2	4,000	1,650
Missouri	44	6,000	1,500	134	30,000	9,000	114	40,000	18,000
Ohio	13	900	4,000	183	47,000	17,000	66	40,000	13,000
Nebraska	7	1,450	2,000	308	46,000	18,000	36	9,000	7,400
Michigan	50	7,000	4,000	84	25,000	10,000	68	25,000	5,640
Indiana	6	1,480	200	108	40,000	11,000	51	35,000	6,000
Kansas	4	300	360	315	50,000	31,000	23	5,000	2,450
All others	692	95,120	84,770	896	151,400	82,060	215	54,000	17,930
	Nuts			Poultry and poultry products			Tobacco		
United States	65	17,500	8,500	154	78,000	53,000	20	60,000	6,500
Geographic divisions:									
New England				8	1,340	1,260			
Middle Atlantic				16	8,800	2,110	3	100	10
East North Central				9	2,650	870	3	8,200	610
West North Central				24	11,450	6,580	1		
South Atlantic	12	4,100	210	16	8,830	430	5	26,200	3,170
East South Central	5	1,330	50	7	2,350	170	8	25,500	2,710
West South Central	11	470	40	20	5,720	540			
Mountain				39	12,660	8,850			
Pacific	37	11,600	8,200	15	24,200	32,190			
Farm credit districts:									
1				20	10,040	3,280			
2	2	1,800	10	8	330	230	6	21,000	3,160
3	10	2,300	200	12	8,600	290	2	5,300	20
4				6	1,320	520	9	25,900	2,720
5	6	1,350	60	8	2,300	160			
6				16	11,000	6,250	1		
7				5	660	370	2	7,800	600
8				13	2,070	390			
9	2	100		12	2,720	400			
10	8	350	30	12	5,000	500			
11	31	10,400	8,000	13	15,660	24,610			
12	6	1,200	200	29	18,300	16,000			
Leading States:									
Minnesota				3	180	250			
Illinois				3	1,000	250			
Iowa				3	700	80			
Wisconsin				1	180	20	2	7,800	600
California	31	10,400	8,000	6	9,000	17,350			
New York				5	5,340	1,520			
Missouri				13	10,000	6,000	1		
Ohio				1	70	50	1	400	10
Nebraska				3	500	150			
Michigan				1	300	100			
Indiana				3	1,100	450			
Kansas									
All others	34	7,100	500	112	49,630	26,780	16	51,800	5,890
	Wood and mohair			Miscellaneous selling			Miscellaneous buying		
United States	115	62,000	9,000	424	98,000	27,000	1,648	542,700	140,500
Geographic divisions:									
New England	4	260	110	16	1,680	490	92	47,010	15,710
Middle Atlantic	26	2,000	140	25	2,900	850	240	77,000	30,670
East North Central	6	14,200	700	93	29,200	5,920	354	140,700	33,100
West North Central	11	25,050	1,320	135	20,200	9,260	686	202,400	31,880
South Atlantic	7	2,460	120	37	16,210	4,860	74	20,385	6,820
East South Central	20	3,600	180	62	13,310	2,860	29	15,310	1,440
West South Central	7	3,000	1,000	20	6,050	1,490	61	15,620	3,860
Mountain	31	8,760	3,930	27	3,550	1,140	59	11,375	2,520
Pacific	3	2,670	1,500	9	4,900	130	53	12,900	14,500

See footnotes on page 755.

TABLE 528.—*Number of farmers' marketing and purchasing associations, estimated membership, and estimated business, by commodity groups, geographic divisions, farm credit districts, and leading States, 1932–33 marketing season*—Continued

Division, district, and State	Wool and mohair			Miscellaneous selling			Miscellaneous buying		
	Listed [1]	Estimated membership [2]	Estimated business	Listed [1]	Estimated membership [2]	Estimated business	Listed [1]	Estimated membership [2]	Estimated business
	Number	*Number*	*1,000 dollars*	*Number*	*Number*	*1,000 dollars*	*Number*	*Number*	*1,000 dollars*
Farm credit districts:									
1	5	760	150	32	3,580	840	254	112,410	43,110
2	32	3,960	220	20	10,810	2,890	129	25,985	9,290
3				26	6,400	2,470	23	6,000	800
4	21	15,400	720	35	11,010	1,550	131	57,510	12,300
5	2	100	20	49	13,000	2,850	15	12,220	1,140
6	4	12,000	380	112	20,300	7,080	217	75,800	9,420
7	8	9,650	510	80	18,600	5,260	386	116,300	26,840
8	7	6,900	1,030	15	3,300	1,290	261	93,500	14,370
9	5	2,000	1,290	22	3,050	1,090	108	19,600	5,550
10	6	3,000	1,000	8	750	1,000	30	4,800	1,960
11	7	1,660	1,870	11	1,610	390	19	5,275	11,550
12	18	6,570	1,810	14	5,590	290	75	13,300	4,170
Leading States:									
Minnesota	4	3,900	180	10	2,000	640	184	65,000	11,600
Illinois				9	5,000	130	79	45,000	8,000
Iowa	2	3,100	250	7	700	400	132	52,000	7,000
Wisconsin	2	1,500	60	27	4,000	1,700	119	31,400	9,700
California	1	300	350	2	50	60	12	4,800	11,500
New York	1	500	40	8	500	70	136	58,000	24,500
Missouri	3	12,000	380	100	15,000	6,850	130	30,000	1,000
Ohio	1	8,100	480	7	2,000	190	41	16,400	4,500
Nebraska				3	400	50	90	32,000	5,530
Michigan	1	800	80	40	12,500	2,900	41	14,900	3,600
Indiana	2	3,800	80	10	5,700	1,000	74	33,000	7,300
Kansas				9	800	1,000	75	10,000	3,370
All others	98	28,000	7,100	192	49,350	12,010	535	150,200	42,900

Division, district, and State	Total		
	Listed [1]	Estimated membership [2]	Estimated business
	Number	*Number*	*1,000 dollars*
United States	11,000	3,000,000	1,340,000
Geographic divisions:			
New England	214	94,430	55,760
Middle Atlantic	457	225,650	153,650
East North Central	2,971	831,430	317,110
West North Central	4,817	1,072,350	372,030
South Atlantic	455	158,575	66,970
East South Central	275	164,880	30,570
West South Central	568	176,220	57,210
Mountain	467	111,955	54,930
Pacific	776	164,510	231,770
Farm credit districts:			
1	503	263,980	175,730
2	337	133,735	67,570
3	286	80,940	33,080
4	770	372,190	101,550
5	166	105,940	26,450
6	1,481	410,490	170,550
7	3,474	679,940	243,780
8	1,888	469,050	154,530
9	805	173,620	76,150
10	216	76,400	27,430
11	496	105,915	174,580
12	578	127,800	88,600
Leading States:			
Minnesota	1,448	312,480	109,170
Illinois	839	245,200	121,480
Iowa	1,050	243,700	89,500
Wisconsin	1,150	161,180	66,960
California	423	83,300	161,600
New York	239	154,390	114,290
Missouri	556	156,390	45,850
Ohio	342	146,670	55,030
Nebraska	488	139,410	37,740
Michigan	358	137,800	42,210
Indiana	282	140,580	31,430
Kansas	436	71,570	39,030
All others	3,389	1,007,330	425,710

Farm Credit Administration. See footnotes on page 755.

TABLE 529.—*Farmers' selling and buying associations, estimated membership, and estimated business, by commodity groups, 1925–26, 1927–28, 1929–30 to 1932–33*

Commodity group	Associations listed [1]						Estimated membership [2]						Estimated business					
	1926	1928	1930	1931	1932	1933	1926	1928	1930	1931	1932	1933	1925–26	1927–28	1929–30	1930–31	1931–32	1932–33
	Number	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Cotton and cotton products	121	125	199	261	267	274	300,000	140,000	150,000	190,000	240,000	200,000	150,000	97,000	110,000	130,000	69,000	42,000
Dairy products	2,197	2,479	2,458	2,391	2,392	2,293	460,000	600,000	650,000	725,000	740,000	724,000	535,000	620,000	680,000	620,000	520,000	390,000
Forage crops	16	15	11	8	31	33	3,000	2,000	1,000	1,000	7,500	7,800	4,000	1,400	1,200	1,200	1,750	1,500
Fruits and vegetables	1,237	1,269	1,384	1,386	1,347	1,268	180,000	215,000	218,000	182,000	180,000	170,000	280,000	300,000	320,000	319,000	283,000	200,000
Grain [3]	3,338	3,455	3,448	3,448	3,500	3,131	520,000	900,000	810,000	775,000	705,000	600,000	750,000	680,000	690,000	621,000	450,000	280,000
Livestock	1,770	2,012	2,153	2,014	1,885	1,575	400,000	450,000	465,000	[4] 400,000	450,000	440,000	320,000	320,000	320,000	300,000	260,000	182,000
Nuts	39	40	44	71	70	65	20,000	15,000	14,000	17,000	18,000	17,500	16,000	14,600	14,600	13,000	8,600	8,500
Poultry and poultry products	71	90	157	160	172	154	50,000	50,000	67,000	82,000	88,000	78,000	40,000	40,000	79,400	86,000	72,000	53,000
Tobacco	24	16	15	13	21	20	300,000	15,000	75,000	40,000	54,000	60,000	90,000	22,000	6,800	7,000	10,000	6,500
Wool and mohair	91	99	131	136	134	115	50,000	25,000	40,000	64,000	62,000	62,000	10,000	7,000	10,800	26,000	21,000	9,000
Miscellaneous selling	682	595	546	474	436	424	170,000	190,000	140,000	132,000	122,500	98,000	70,000	70,000	77,200	61,800	48,650	27,000
Miscellaneous buying	1,217	1,205	1,454	1,588	1,645	1,648	247,000	398,000	470,000	392,000	533,000	542,700	135,000	128,000	190,000	215,000	181,000	140,500
Total	10,803	11,400	12,000	11,950	11,900	11,000	2,700,000	3,000,000	3,100,000	[4] 3,000,000	[4] 3,200,000	3,000,000	2,400,000	2,300,000	2,500,000	2,400,000	1,925,000	1,340,000

[1] Including independent local associations, federations, large-scale centralized associations, sales agencies, and independent service-rendering associations, but not including subsidiaries nor associations only renting unsold property.
[2] Includes members, contract members, shareholders, shippers, consignors, and patrons.
[3] Including dry beans and rice.
[4] In the light of information received subsequent to the original publication of these data, the estimates are being revised.

Farm Credit Administration.

TABLE 530.—*Associations marketing dairy products: Number listed and estimated business, 1925–32*

Year and State	Creamery		Cheese-making		Milk-distributing		Milk-bargaining		Miscellaneous		Total	
	Listed	Estimated business	Listed	Estimated business	Listed	Estimated business	Listed	Estimated business	Listed [1]	Estimated business [2]	Listed	Estimated business
	Number	*1,000 dollars*	*Number*	*1,000 dollars*	*Number*	*1,000 dollars*	*Number*	*1,000 dollars*	*Number*	*1,000 dollars*	*Number*	*1,000 dollars*
1925	1,400	222,000	600	25,000	[3] 140	160,000	40	125,000	17	3,000	2,197	535,000
1926	1,390	230,000	751	32,000	119	135,000	40	192,000	179	11,000	2,479	600,000
1928	1,400	245,000	740	30,000	114	150,000	47	200,000	199	15,000	2,500	640,000
1929	1,385	264,804	717	27,931	111	138,694	50	229,251	195	19,320	2,458	680,000
1930	1,366	219,870	731	21,790	101	142,130	50	227,460	187	28,750	2,435	640,000
1931	1,379	175,290	712	15,680	109	112,090	59	206,460	133	10,480	2,392	520,000
1932	1,357	133,860	645	11,840	108	90,410	68	148,820	115	5,070	2,293	390,000
Leading States, 1932:												
New York	3	100	14	330	6	57,160	4	21,980	1	-------	28	79,570
Minnesota	598	40,730	23	420	3	5,550	1	-------	9	500	634	47,200
Wisconsin	230	23,330	532	8,390	12	3,000	4	7,700	9	260	787	42,680
Illinois	7	500	29	400	6	1,800	9	25,000	27	700	78	28,400
Pennsylvania	16	760	3	50	7	660	2	23,140	1	30	29	24,640
Iowa	244	21,800	------	-------	------	-------	6	1,200	1	-------	251	23,000
California	12	10,540	------	-------	1	40	4	9,500	1	-------	18	20,080
All others	247	36,100	44	2,250	73	22,200	38	60,300	66	3,580	468	124,430

[1] Including federations, sales agencies, warehouse associations, associations manufacturing ice cream, milk powder, etc.
[2] Not including amounts reported by federations, sales agencies, etc.
[3] Including associations marketing cream. In subsequent years these were included among the miscellaneous associations.

Farm Credit Administration.

TABLE 531.—*Butter, cheese, and milk powder made by cooperative associations, and percentages which these quantities were of total production, 1926, and 1928–33* [1]

Year	Butter [2]			Cheese			Milk powder		
	Associations	Estimated quantity [3]	Percent of total production	Associations	Estimated quantity [3]	Percent of total production	Associations	Estimated quantity [3]	Percent of total production
	Number	*1,000 pounds*	*Percent*	*Number*	*1,000 pounds*	*Percent*	*Number*	*1,000 pounds*	*Percent*
1926	1,480	497,961	34.3	792	139,113	32.5	--------	--------	--------
1928	1,517	520,592	35.0	788	132,955	30.4	89	47,507	23.3
1929	1,511	540,688	33.9	758	118,850	24.6	135	81,001	29.4
1930	1,464	563,909	35.4	778	129,545	25.3	137	94,695	27.6
1931	1,473	599,926	36.0	774	129,671	26.3	122	102,017	31.4
1932	[4] 1,567	668,161	39.4	[5] 741	130,100	26.9	108	102,425	30.9
1933 [6]	[4] 1,491	687,538	39.6	[5] 732	129,319	26.0	140	108,673	--------

[1] Information not obtained for 1927.
[2] Creamery butter only.
[3] Estimated quantity including production by associations other than those listed as primarily engaged in the manufacture of the specified products.
[4] Number listed as making butter.
[5] Number listed as making cheese.
[6] Preliminary.

Farm Credit Administration.

TABLE 532.—*Cooperative citrus-fruit shipments and such shipments as a percentage of production for specified areas, 1920–21 to 1932–33*

[Revised to Jan. 1, 1934]

Marketing season	Packed boxes handled by associations in—							
	California and Arizona		Florida and Alabama		Texas		United States	
	Boxes	*Percent* [1]	*Boxes*	*Percent* [1]	*Boxes*	*Percent* [1]	*Boxes*	*Percent* [1]
1920–21	21,806,253	77.9	3,905,841	24.9			25,712,094	58.8
1921–22	12,847,455	69.6	3,908,395	25.1			16,755,850	49.1
1922–23	19,810,048	78.5	5,443,758	28.9			25,253,806	57.1
1923–24	21,671,344	68.6	5,548,241	24.7	26,570	37.4	27,246,155	50.2
1924–25	17,635,860	72.8	6,375,759	31.2	65,690	29.5	24,077,309	53.6
1925–26	23,011,773	71.1	4,193,316	22.3	38,624	18.4	27,243,713	52.9
1926–27	25,427,062	69.2	4,860,948	24.0	95,053	23.6	30,383,063	52.7
1927–28	21,810,826	73.5	3,876,577	21.3	124,115	20.9	[2] 25,843,253	53.0
1928–29	32,129,643	66.7	7,280,156	27.5	262,459	30.2	[2] 39,716,747	52.4
1929–30	22,930,811	79.4	5,549,105	29.5	453,043	25.3	[2] 28,967,192	58.3
1930–31	31,880,555	70.5	10,277,883	29.1	363,430	26.2	[2] 42,584,511	51.8
1931–32 [3]	33,657,684	74.9	7,393,356	29.5	548,237	18.3	41,661,840	56.8
1932–33 [3]	34,329,255	79.6	6,938,493	24.7	249,779	14.7	41,552,235	56.7

[1] Percentage of production for the specified area, Department of Agriculture data as given under fruits and vegetables in this Yearbook. [2] Including an association in Louisiana. [3] Preliminary.

Farm Credit Administration.

TABLE 533.—*Livestock handled, sales, and purchases, by terminal-market cooperative sales agencies, 1919–33*

Year	Animals received [1]					Animals purchased	
	Associations listed	Cattle and calves	Hogs	Sheep	Total [2]	Associations purchasing	Animals
	Number	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*
1919	4	63,876	381,127	23,940	563,383	2	8,504
1920	4	85,313	536,380	29,676	748,255	2	6,550
1921	6	163,361	912,095	103,101	1,310,628	3	42,032
1922	16	736,982	3,414,016	352,861	4,727,056	4	86,350
1923	23	1,409,322	7,732,437	733,552	9,933,445	8	103,928
1924	26	1,893,326	9,239,070	1,202,616	11,382,304	14	242,039
1925	28	1,881,241	7,377,084	1,350,311	10,666,069	18	288,150
1926	27	2,003,014	6,687,296	1,581,882	10,333,307	18	328,016
1927	28	1,678,094	7,149,561	1,598,465	10,426,120	21	280,808
1928	28	1,751,599	8,483,413	1,686,889	11,921,901	18	325,267
1929	28	1,904,066	8,054,184	2,093,136	12,051,386	20	[3] 577,646
1930	30	2,088,411	7,259,731	2,609,604	11,957,746	22	723,422
1931	34	2,216,507	7,169,955	3,028,503	12,414,965	23	633,855
1932 [4]	38	2,120,480	6,352,022	3,306,425	11,778,927	27	567,183
1933 [5]	41	2,272,000	7,475,000	3,376,000	13,123,000	26	547,000

Year	Total animals handled		Value of sales [6]	Value of purchases	Value of business handled	
	Associations listed	Animals [2]			Associations listed	Total [7]
	Number	*Number*	*Dollars*	*Dollars*	*Number*	*Dollars*
1919	4	571,887	35,178,255	622,335	6	35,800,590
1920	4	754,805	37,419,935	458,824	6	37,878,759
1921	6	1,352,660	35,309,401	894,972	6	36,204,373
1922	16	4,813,406	101,818,588	3,069,638	18	104,888,226
1923	23	10,037,373	191,954,106	4,631,630	23	196,004,508
1924	26	11,624,343	231,372,776	5,222,121	24	236,594,897
1925	28	10,954,219	271,797,282	7,923,372	24	279,720,654
1926	27	10,661,323	278,900,462	8,249,106	24	293,249,470
1927	28	10,793,681	145,202,942	3,036,904	28	274,209,285
1928	28	12,339,000	279,674,261	8,741,163	28	289,152,931
1929	28	[3] 12,755,647	302,894,934	[3] 11,627,701	28	314,522,635
1930	30	12,857,965	263,679,996	10,008,169	30	273,688,165
1931	34	[8] 13,306,743	183,288,867	6,915,387	34	[8] 190,769,836
1932 [4]	38	[8] 12,763,652	119,373,515	6,091,102	38	[8] 127,813,049
1933 [5]	41	[8] 14,000,000	128,000,000	6,250,000	41	[8] 138,000,000

[1] Includes some animals sold for yard traders.
[2] Includes animals not segregated by kind.
[3] Includes 114,757 sheep, valued at $906,040 from producers to feeders.
[4] Estimates based on reports from 36 of the 38 associations.
[5] Estimates based on reports from 35 of the 41 associations.
[6] Includes sales for yard traders.
[7] Includes business not classified as sales or purchases.
[8] Includes animals handled in the country.

Farm Credit Administration.

TABLE 534.—*Freight tonnage originating on railways in the United States, 1926–32* [1]

Commodity	Calendar year						
	1926	1927	1928	1929	1930	1931	1932 [2]
FARM PRODUCTS							
Animals and animal products:	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*	*1,000 short tons*
Animals, live:							
Horses and mules	513	541	577	553	440	316	230
Cattle and calves	9,241	8,636	7,976	7,310	6,785	6,097	4,896
Sheep and goats	1,270	1,296	1,362	1,387	1,385	1,343	1,085
Hogs	5,271	5,369	5,871	5,534	4,902	4,501	3,885
Packing-house products:							
Fresh meats	2,996	2,986	2,935	3,007	2,928	2,933	2,724
Hides and leather	984	1,010	914	913	847	782	655
Other packing-house products	2,023	1,957	1,461	1,414	1,165	1,140	1,052
Total	6,003	5,953	5,310	5,334	4,940	4,855	4,431
Eggs	644	651	635	588	612	582	424
Butter and cheese	725	747	754	793	807	768	735
Poultry	408	407	407	418	419	416	382
Wool	281	356	394	414	354	388	271
Other animals and products	1,888	2,054	2,348	2,576	2,485	2,366	1,716
Total animals and animal products	26,244	26,010	25,634	24,907	23,129	21,632	18,055
Vegetable products:							
Cotton	4,482	4,182	3,772	3,940	3,032	2,432	2,777
Fruits and vegetables	12,223	12,029	12,947	12,875	12,589	11,906	9,866
Potatoes	4,339	4,728	4,511	4,425	4,332	4,114	3,418
Grain and grain products:							
Grain:							
Wheat	24,379	26,237	26,950	27,019	25,466	26,228	19,120
Corn	13,924	13,162	17,045	15,258	13,986	10,728	9,544
Oats	6,496	5,518	5,888	5,713	5,184	3,970	3,399
Other grain	4,014	5,216	5,506	4,477	4,045	2,924	2,229
Grain products:							
Flour and meal	10,137	10,027	10,754	10,627	10,546	10,067	9,319
Other mill products	9,768	10,179	10,580	10,821	10,610	8,783	6,629
Total	68,718	70,339	76,723	73,915	69,837	62,700	50,240
Hay, straw, and alfalfa	5,028	4,468	3,999	3,697	3,494	2,174	1,569
Sugar, sirup, glucose, and molasses	5,744	5,584	5,604	5,858	5,659	5,142	4,286
Tobacco	1,010	1,053	945	989	1,008	816	642
Other vegetable products	17,609	18,469	16,686	15,502	16,436	13,346	12,405
Total vegetable products	119,153	120,852	125,187	121,201	116,387	102,630	85,203
Canned goods (food products)	4,070	4,204	4,805	5,029	4,751	3,954	3,167
Total farm products	149,467	151,066	155,626	151,137	144,267	128,216	106,425
OTHER FREIGHT							
Products of mines	758,064	713,731	696,583	737,879	642,537	501,903	362,226
Products of forests	104,859	99,391	96,737	94,855	69,366	43,024	26,109
Manufactures	284,640	279,407	300,043	319,177	267,353	198,270	136,229
Merchandise, all l.c.l. freight	39,498	38,432	36,954	36,043	29,667	22,773	15,234
Total tonnage	1,336,528	1,282,027	1,285,943	1,339,091	1,153,190	894,186	646,223

[1] Weight as delivered at original shipping point. In the case of freight transported over several different railways, each ton is counted only when transported by the first railway. Some traffic, reshipped under new billing without benefit of transit privileges or proportional rates, may be counted more than once.
[2] Preliminary.

Bureau of Agricultural Economics; compiled from reports of the Interstate Commerce Commission. Figures for earlier years appear in previous issues of the Yearbook.

TABLE 535.—*Index numbers of freight rates on livestock, wheat, and cotton, 1913–14 to 1933–34* [1]

Year beginning July	Livestock						
	Cattle				Hogs		
	Western district	Eastern district	Southern district	United States	Western district	Eastern district	United States
1913–14	100	100	100	100	100	100	100
1914–15	100	104	100	100	99	102	100
1915–16	100	108	99	101	99	107	101
1916–17	100	113	98	102	99	116	102
1917–18	101	116	98	103	100	122	104
1918–19	126	158	120	129	124	169	132
1919–20	128	157	120	131	124	169	132
1920–21	166	207	148	170	161	222	172
1921–22	164	211	147	169	160	230	173
1922–23	155	197	137	160	153	218	164
1923–24	154	201	136	159	153	217	164
1924–25	152	199	136	158	151	214	163
1925–26	152	199	136	158	150	214	161
1926–27	152	199	136	157	150	214	161
1927–28	151	201	136	157	150	214	161
1928–29	151	198	136	157	150	205	160
1929–30	151	195	136	156	150	199	159
1930–31	151	190	136	156	150	198	158
1931–32	157	187	136	160	149	198	158
1932–33	163	186	136	165	148	199	157
1933–34 [2]	161	186	136	164	147	199	157

Year beginning July	Livestock—Continued				Wheat				Cotton
	Sheep			Total	Spring	Western	Winter	All wheat [3]	
	Western district	Eastern district	United States						
1913–14	100	100	100	100	100	100	100	100	100
1914–15	99	102	99	100	100	100	101	101	100
1915–16	98	105	99	101	101	100	100	100	100
1916–17	98	112	100	102	101	100	101	101	100
1917–18	99	129	103	103	101	100	101	101	103
1918–19	118	167	126	130	127	126	129	128	133
1919–20	119	167	127	131	127	126	128	128	136
1920–21	152	225	164	170	164	154	166	164	171
1921–22	148	226	160	169	160	148	162	160	176
1922–23	137	199	147	160	149	140	152	150	164
1923–24	137	200	147	160	149	140	152	150	164
1924–25	137	200	146	158	149	140	152	150	166
1925–26	135	200	145	157	148	140	152	150	166
1926–27	134	200	144	157	148	140	152	150	166
1927–28	134	200	144	157	148	140	151	149	165
1928–29	135	189	143	156	148	140	149	148	164
1929–30	135	181	142	155	148	140	149	148	163
1930–31	135	183	142	155	148	140	147	146	159
1931–32	135	185	143	155	146	132	138	139	139
1932–33	135	185	143	156	148	140	147	146	109
1933–34 [2]	135	185	143	156	148	140	147	146	98

[1] Based on rates in effect through Mar. 26, 1934, except cotton which is through Mar. 31.
[2] Preliminary.
[3] Index for spring, western, and winter wheat weighted respectively 2, 1, and 5. Weight based on average production, 1923–27.

Bureau of Agricultural Economics.
These relatives are based on the average of the rates in effect during the crop year. Rates in effect in 1913=100. For points of origin and destination, see Yearbook, 1926, pp. 1248–1249.

TABLE 536.—*Cooperative extension workers:* [1] *Number employed, United States, June 30, 1932, and June 30, 1933*

State or Territory	County agricultural agents and assistants [2]		County home demonstration agents and assistants		County club agents and assistants		Administrators and supervisors		Subject-matter specialists		Total	
	1932	1933 [2]	1932	1933	1932	1933	1932	1933	1932	1933	1932	1933
Alabama	89	95	56	59			13	12	18	12	176	178
Alaska							3	3		1	3	4
Arizona	17	17	7	5			3	3	8	7	35	32
Arkansas	68	87	58	57			15	15	15	16	156	175
California	88	86	30	30			12	12	25	27	155	155
Colorado	31	26	10	6			5	5	14	13	60	50
Connecticut	10	10	8	8	13	13	5	5	25	24	61	60
Delaware	3	3	3	3	3	3	3	3	6	6	18	18
Florida	45	47	37	34			12	11	15	15	109	107
Georgia	130	165	93	100			18	9	27	10	268	284
Hawaii	4	6	5	6			3	3	4	4	16	19
Idaho	24	20	6	6	2	2	6	7	16	17	54	52
Illinois	110	109	32	33	4	4	14	13	29	30	189	189
Indiana	84	81	11	11	5	5	13	12	36	33	149	142
Iowa	103	103	20	19	7	2	17	17	63	62	210	203
Kansas	78	79	30	26	2	1	13	13	36	31	159	150
Kentucky	91	86	28	29			18	18	35	35	172	168
Louisiana	77	75	48	44			17	16	21	17	163	152
Maine	15	15	14	14	7	7	5	5	11	12	52	53
Maryland	31	31	26	26			6	5	31	33	94	95
Massachusetts	19	20	16	16	26	26	8	8	23	22	92	92
Michigan	66	66	6	5	11	9	16	16	50	44	149	140
Minnesota	65	58	16	13	19	15	14	12	27	25	141	123
Mississippi	93	98	69	64			20	18	21	24	203	204
Missouri	69	71	16	15			8	8	29	19	122	113
Montana	31	28	12	9			5	5	13	15	61	57
Nebraska	48	46	14	14		1	9	9	25	24	96	94
Nevada	12	12	5	5			3	3	3	3	23	23
New Hampshire	11	11	10	10	13	13	5	5	13	13	52	52
New Jersey	22	21	20	15	9	7	4	4	19	17	74	64
New Mexico	20	19	9	8			6	6	6	5	41	38
New York	80	73	49	44	46	38	12	10	88	87	275	252
North Carolina	107	108	66	93			15	15	21	21	209	237
North Dakota	31	23	6	4			6	6	17	15	60	48
Ohio	75	70	24	21	11	11	14	12	53	52	177	166
Oklahoma	83	105	66	74			18	16	19	13	186	208
Oregon	35	34	7	7	8	8	7	7	15	12	72	68
Pennsylvania	73	73	46	46			12	12	45	42	176	173
Puerto Rico									1	1	1	1
Rhode Island	3	3	3	3	3	3	3	3	9	7	21	19
South Carolina	64	77	54	55			15	15	25	13	158	160
South Dakota	24	17	13	14	4	4	7	7	16	15	64	57
Tennessee	87	88	43	43			14	12	25	19	169	162
Texas	202	226	136	149			26	26	26	25	390	426
Utah	22	22	7	7			5	5	13	14	47	48
Vermont	12	14	12	11	11	11	5	5	11	11	51	52
Virginia	98	101	49	48			17	17	37	37	201	203
Washington	39	39	11	11	5	3	3	3	11	10	69	66
West Virginia	46	49	26	25	6	8	9	8	20	19	107	109
Wisconsin	52	47	5	5	6	8	13	11	51	42	127	113
Wyoming	21	20	10	7			4	4	11	8	46	39
Total	2,708	2,780	1,348	1,357	221	202	504	475	1,178	1,079	5,959	5,893

[1] Includes both white and Negro extension workers.
[2] Includes 190 emergency agricultural assistants.

Extension Service.

TABLE 537.—*Cooperative extension work: Projects and percentage of agents' and specialists'* [1] *time devoted to each, 1925–32*

Project	1925	1926	1927	1928	1929	1930	1931	1932
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
Soils	5.2	5.3	4.8	5.1	5.1	(2)	(2)	(2)
Farm crops	13.1	13.1	12.4	11.5	11.6	15.2	13.8	12.1
Horticulture	6.9	7.3	7.1	7.3	7.0	8.7	9.4	10.3
Forestry	.5	.7	.9	1.0	1.0	.9	.9	.9
Animal husbandry	7.1	7.5	8.2	7.8	7.6	6.5	6.7	6.8
Dairy husbandry	7.0	7.1	7.9	8.7	8.6	7.7	6.7	5.8
Poultry husbandry	8.7	9.0	8.8	8.1	7.9	7.6	6.8	6.5
Rural engineering	3.7	3.6	3.4	3.3	3.2	3.3	3.1	2.9
Rodents and insects	2.0	1.7	1.5	1.3	1.1	1.3	1.4	1.6
Agricultural economics	3.9	4.0	4.1	4.0	4.3	6.2	6.8	7.4
Foods and nutrition	7.1	7.2	7.1	7.0	7.5	7.0	7.1	8.0
Child training and care	------	------	------	------	------	[3] .6	.6	.7
Clothing	7.9	7.1	6.8	6.8	6.9	6.7	6.6	6.4
Home management	1.7	1.5	1.5	1.7	2.2	2.1	2.0	2.0
House furnishings	1.2	1.8	2.0	2.4	2.6	2.6	2.7	2.7
Home health and sanitation	1.2	1.2	1.2	1.2	1.2	1.3	1.2	1.0
Community activities	6.2	5.9	6.0	5.8	5.9	4.0	5.3	5.0
Formulation of the extension program	------	------	------	------	------	[3] 3.7	3.7	4.4
Organization	------	------	------	------	------	[3] 7.1	7.2	8.0
Miscellaneous	16.1	16.0	16.3	17.0	16.3	7.5	8.0	7.5

[1] Only field work of specialists as reported by county extension agents is included.
[2] Since 1929 the percentage of time devoted to "soils" has been included in "farm crops."
[3] Prior to 1930 the information on "child training and care", "formulation of the extension program", and "organization" was included in "miscellaneous."

Extension Service.

TABLE 538.—*Extension activities and accomplishments, as reported by all county extension agents, 1927–32*

Total activity or accomplishment relating to extension	1927	1928	1929	1930	1931	1932
	Number	*Number*	*Number*	*Number*	*Number*	*Number*
Farm visits made	1,439,503	1,506,510	1,633,154	1,758,743	1,822,272	1,831,319
Home visits made	396,093	432,433	489,294	546,208	602,885	633,784
Office calls received	3,600,448	3,687,570	3,991,725	4,317,565	5,156,854	5,202,539
Telephone calls received	2,476,572	2,556,899	2,710,723	3,015,707	3,063,569	3,208,761
News articles or stories published	334,271	371,331	423,600	449,854	490,507	491,687
Individual letters written	4,208,801	4,510,657	4,712,940	4,501,988	4,551,924	4,412,223
Different circular letters prepared	------	------	------	214,561	274,422	247,536
Bulletins distributed	5,120,768	5,608,604	6,345,488	6,657,561	8,203,294	8,216,890
Radio talks made	------	------	------	4,148	5,539	8,133
Events at which exhibits were shown	8,983	8,999	9,826	20,476	19,663	22,341
Training meetings held for local leaders	38,064	42,902	41,604	42,903	52,510	55,334
Method demonstration meetings held	398,051	437,993	486,398	402,458	461,793	491,060
Meetings at result demonstrations				66,368	70,098	66,525
Tours conducted	------	------	------	8,772	9,851	10,699
Achievement days held	------	------	------	14,720	15,450	16,759
Encampments held	3,145	2,781	2,921	3,762	3,685	3,335
All meetings held	636,588	683,305	771,321	750,379	851,197	906,373
Attendance at all meetings held	21,421,375	21,951,317	24,878,236	25,605,485	30,287,348	31,495,656
Result demonstrations conducted	772,185	851,526	929,744	934,182	1,090,011	1,226,082
Voluntary local leaders assisting with—						
Adult extension	183,065	179,559	201,882	233,043	278,633	311,604
Junior extension	60,182	58,258	71,636	85,344	98,394	105,254
Adult home demonstration groups	------	------	------	34,959	38,358	41,131
Members of such groups	------	------	------	646,340	760,171	803,203

Extension Service.

TABLE 539.—*4-H club work: Number of clubs, enrollment, projects completed, etc., 1926–32*

Item	1926	1927	1928	1929	1930	1931	1932
Junior clubs	41,234	44,188	46,671	52,180	56,180	60,781	59,081
Different boys enrolled	234,078	249,553	270,534	303,509	333,197	360,653	381,573
Different girls enrolled	352,078	370,159	393,406	452,587	489,517	529,721	544,039
Total enrollment	586,156	619,712	663,940	756,096	822,714	890,374	925,612
Different boys completing [1]	145,202	153,324	175,069	201,910	222,472	252,328	271,339
Different girls completing [1]	223,103	245,783	272,510	305,577	331,873	376,915	399,383
Total completing	368,305	399,107	447,579	507,487	554,345	629,243	670,722
Projects started	1,161,024	1,330,239	1,466,584	1,614,149	1,535,619	1,693,866	1,765,480
Projects completed (total)[1]	673,997	776,029	882,795	995,262	971,308	1,114,065	1,205,108
Cereals	24,107	25,789	26,997	29,197	35,380	44,595	47,414
Legumes and forage	4,988	5,253	6,137	7,559	7,902	10,582	12,757
Potatoes, cotton, and other special crops	30,458	25,228	36,475	40,380	45,010	45,883	42,406
Horticulture	81,494	88,922	112,296	124,459	123,751	156,392	178,943
Forestry	730	2,192	2,719	3,852	5,379	7,877	11,416
Rural engineering					6,701	7,168	7,298
Dairy	19,094	23,076	29,468	37,218	36,554	38,862	38,670
Animal husbandry	37,409	44,341	48,233	54,227	57,790	68,547	78,590
Poultry	52,730	56,756	56,900	60,020	61,519	62,058	66,124
Agricultural economics	6,139	4,925	8,361	7,379	6,448	6,558	6,696
Foods	131,121	142,302	167,058	182,877	193,242	226,390	247,914
Nutrition	39,071	54,451	62,790	65,652			
Child training and care					[2] 4,508	5,360	6,142
Clothing	133,501	146,181	162,291	190,249	209,656	231,749	233,341
Home management	10,215	13,822	16,309	16,237	17,472	21,000	24,450
House furnishings	24,834	30,024	36,274	40,999	49,571	52,753	62,435
Home health and sanitation	40,857	56,352	59,342	77,932	67,810	79,812	84,519
Miscellaneous	37,249	56,415	51,145	57,025	42,615	48,479	55,993

[1] Different boys and girls completing is the sum of the individual boys and girls completing 1 or more projects, in contrast to project completions which is the sum of all the projects completed by all boys and girls.

[2] Prior to 1930, the work on "child training and care" was included in "miscellaneous."

Extension Service.

TABLE 540.—*Imports and price per pound of raw silk and production, imports and price per pound of rayon yarn, United States, 1924–33*

Calendar year	Raw silk		Rayon yarn			
					Average price [4]	
	Net imports [1]	Average price [2]	Production	Net imports [3]	150 A denier	300 A denier
	1,000 pounds	*Dollars*	*1,000 pounds*	*1,000 pounds*	*Dollars*	*Dollars*
1924	59,626	5.917	38,494	6,569	2.113	1.871
1925	76,003	6.341	51,902	12,363	2.004	1.754
1926	76,870	5.937	63,648	13,918	1.810	1.603
1927	85,036	5.100	75,555	17,740	1.489	1.289
1928	87,172	4.859	97,901	15,113	1.500	1.300
1929	96,848	[5] 4.777	122,000	20,318	1.246	1.073
1930	80,581	[5] 3.173	110,000	6,009	1.059	.900
1931	87,540	[5] 2.233	144,350	3,460	.758	.636
1932	74,841	[5] 1.473	131,000	2,500	.660	.538
1933 [6]	70,361	[5] 1,534	207,500	6,157	.609	.503

[1] Net imports are imports minus reexports.

[2] Average of monthly average prices of Japanese Kansai, No. 1.

[3] Net imports are imports minus reexports 1924. Subsequent years are imports minus exports and reexports.

[4] Average of monthly average prices. The count indicates the number of deniers or one half decigram units, in weight, of a standard length of 450 meters. Since the standard is based on an arbitrary fixed length and a variable weight, the finer the yarn the smaller the count; 150 denier count, a size commonly used, is fine and 300 denier count is coarse.

[5] Average of monthly average prices of Japanese Best, No. 1 x 13–15.

[6] Preliminary.

Bureau of Agricultural Economics; compiled from annual issues of Commerce and Navigation of United States Department of Commerce, except production of rayon yarn which is from Yearbook of the Department of Commerce; prices are from bulletins of the U.S. Bureau of Labor Statistics.

TABLE 541.—*Foreign exchange: Average rates at New York, by months, 1931–33*

Year and month	English pound	French franc	German reichsmark	Danish krone	Canadian dollar	Argentine gold peso [1]	Japanese yen
	Cents	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
Par value	486.66	3.92	23.82	26.80	100.00	96.48	49.85
1931:							
January	485.47	3.92	23.77	26.72	99.79	69.70	49.44
February	485.84	3.92	23.77	26.75	99.98	71.94	49.41
March	485.83	3.91	23.81	26.75	99.98	78.04	49.37
April	485.99	3.91	23.81	26.75	99.95	76.46	49.36
May	486.40	3.91	23.80	26.77	99.94	70.71	49.38
June	486.49	3.92	23.73	26.78	99.72	70.25	49.37
July	485.61	3.92	23.28	26.73	99.66	69.88	49.36
August	485.77	3.92	23.66	26.73	99.69	64.57	49.35
September	453.13	3.93	23.42	25.26	96.25	59.69	49.34
October	388.93	3.94	23.24	22.02	89.10	52.00	49.25
November	371.99	3.92	23.68	20.67	88.99	58.84	49.30
December	337.37	3.92	23.62	18.59	82.71	58.52	43.46
Average	453.50	3.92	23.63	25.06	96.33	66.74	48.85
1932:							
January	343.12	3.93	23.65	18.88	85.13	58.27	35.99
February	345.63	3.94	23.74	19.02	87.29	58.22	34.32
March	363.93	3.93	23.78	20.01	89.45	58.29	32.16
April	375.00	3.94	23.74	20.53	89.88	58.22	32.81
May	367.51	3.95	23.79	20.07	88.44	58.32	31.97
June	364.66	3.94	23.69	19.92	87.74	58.52	30.29
July	354.96	3.92	23.72	19.20	87.07	58.56	27.45
August	347.57	3.92	23.78	18.50	87.55	58.57	24.49
September	347.11	3.92	23.78	17.98	90.26	58.59	23.63
October	339.62	3.93	23.77	17.64	91.23	58.58	23.06
November	327.53	3.92	23.75	17.06	87.30	58.58	20.62
December	327.87	3.90	23.79	17.01	86.60	58.59	20.73
Average	350.61	3.93	23.75	18.83	88.09	58.44	28.11
1933:							
January	336.14	3.90	23.77	16.91	87.46	58.58	20.74
February	342.21	3.92	23.83	15.26	83.51	58.58	20.79
March [2]	343.28	3.94	23.85	15.32	83.52	58.30	21.26
April	357.93	4.10	24.39	15.95	84.72	[3] 60.49	22.09
May	393.24	4.59	27.36	17.52	87.59	[3] 67.90	24.00
June	413.56	4.80	28.81	18.44	89.89	[3] 71.06	25.76
July	464.99	5.46	33.26	20.77	94.47	[3] 80.73	28.77
August	450.27	5.37	32.71	20.12	94.28	[3] 79.43	26.90
September	466.47	5.77	35.43	20.83	96.47	[3] 86.09	27.25
October	466.83	5.82	35.43	20.84	97.60	[3] 86.12	27.77
November	514.97	6.27	38.24	23.00	101.18	[3] 92.04	30.36
December	511.59	6.12	37.32	22.85	100.55	[3] 33.33	30.74
Average	423.68	5.03	30.52	19.07	91.96	72.80	25.65

[1] Paper peso, equivalent to 44 percent of gold peso, quoted in place of latter beginning Dec. 13, 1933. Average quotation shown above for December 1933, represents period Dec. 13–31. Average quotation of gold peso for Dec. 1–10, was 75.89 cents. No quotation Dec. 11–12, 1933.
[2] No quotations given from Mar. 6 through Mar. 11, due to bank holiday in United States.
[3] Nominal.

Bureau of Agricultural Economics; compiled from Federal Reserve Bulletin.
Averages are based on daily quotations of noon buying rates for cable transfers in New York.

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